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LONDON, NOVEMBER 19, 1954

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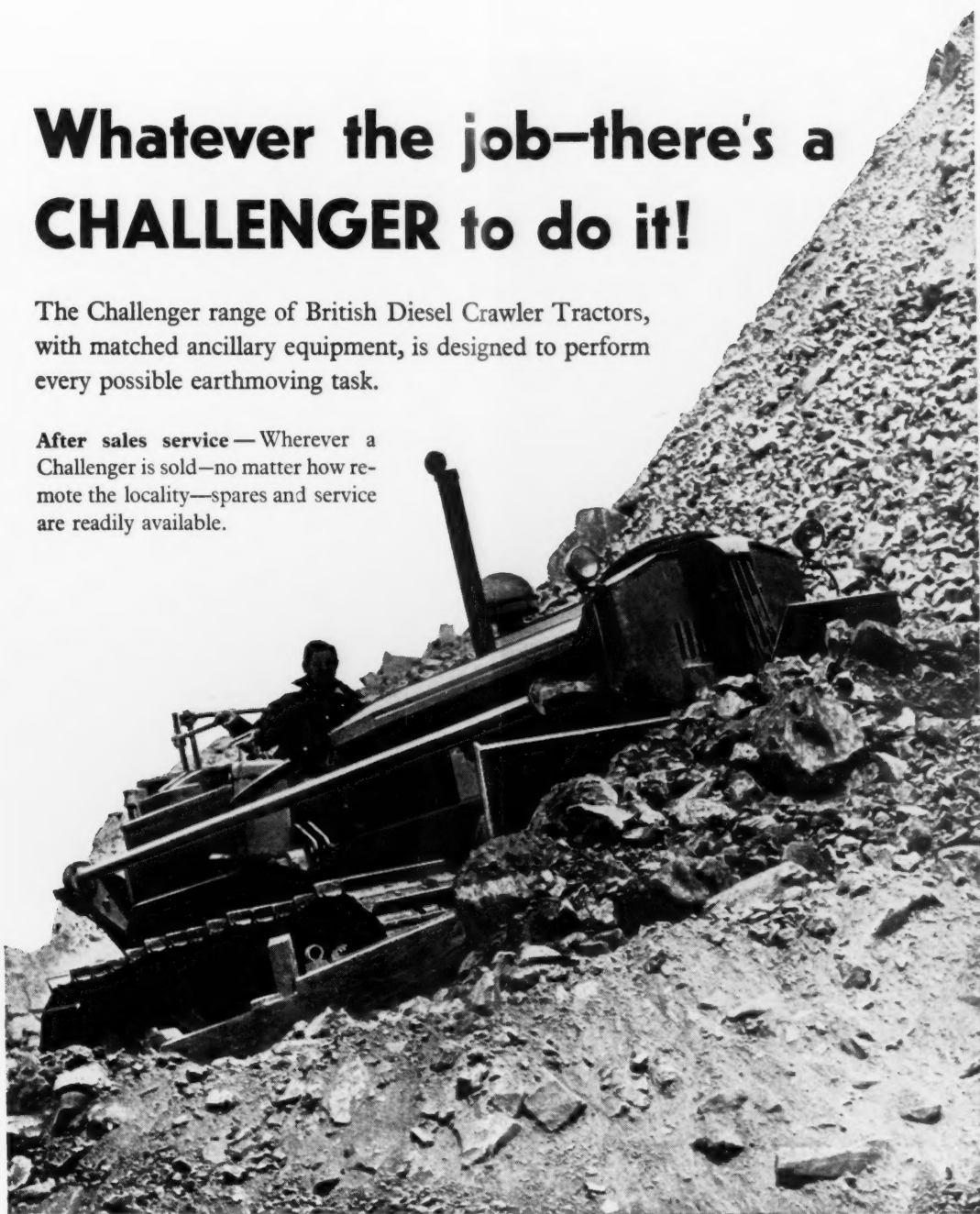
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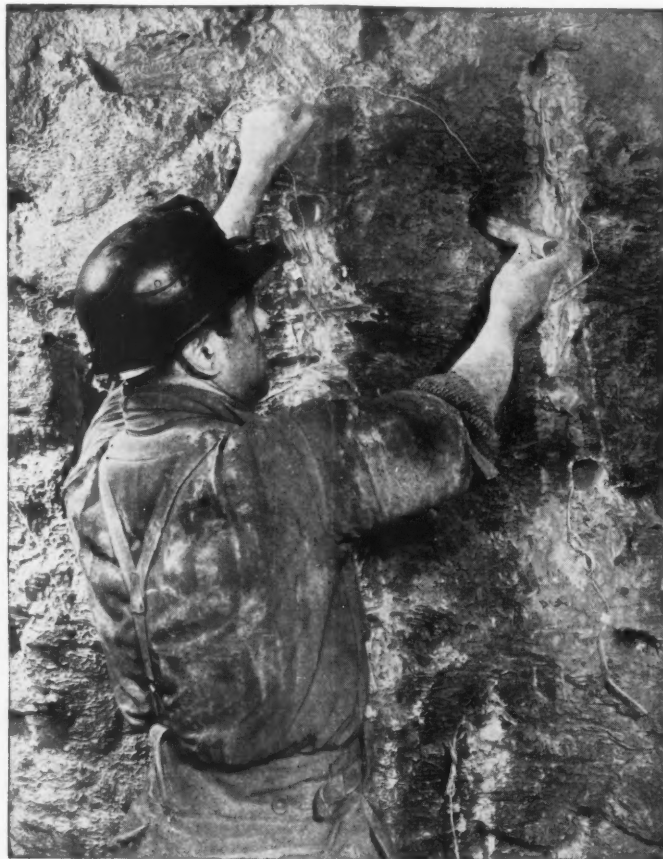
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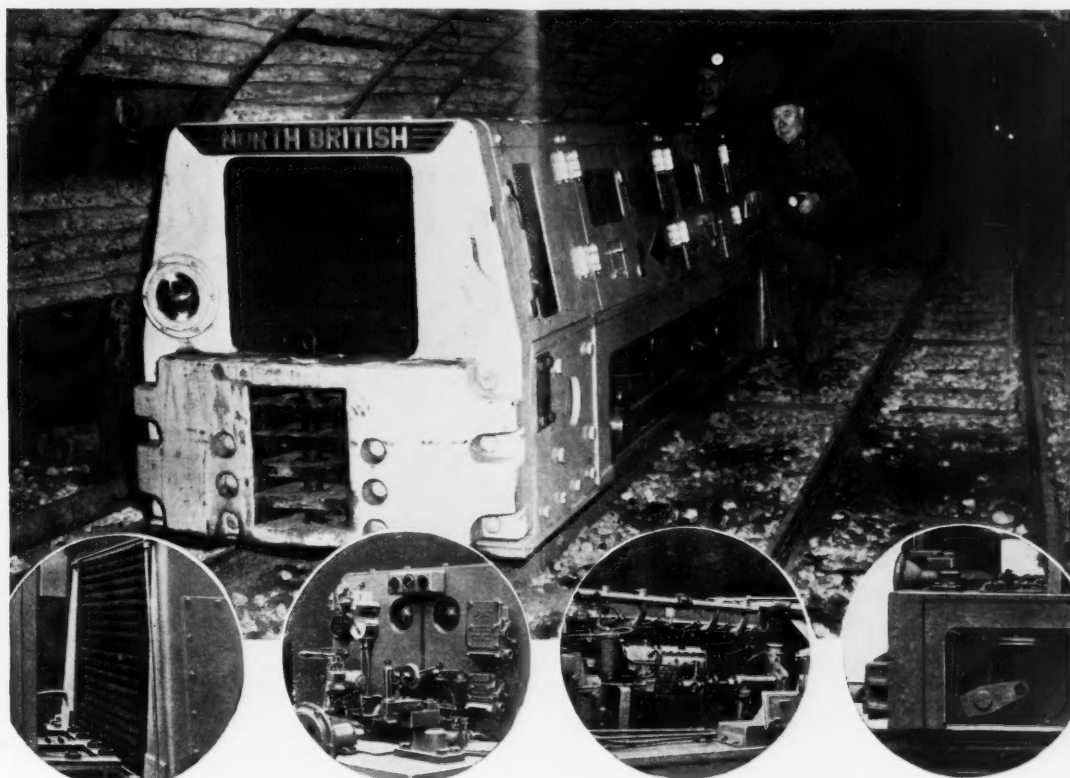
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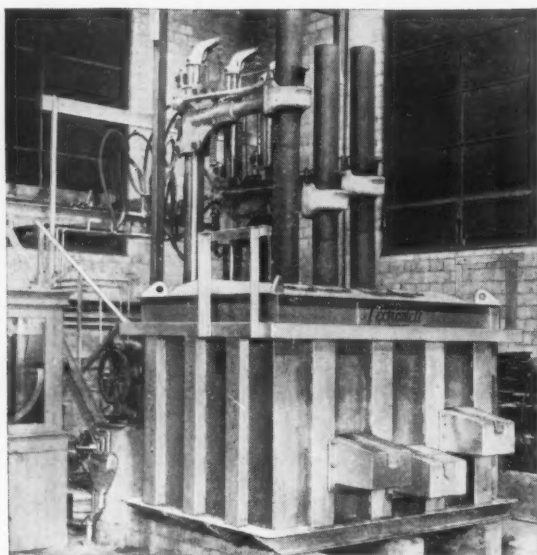


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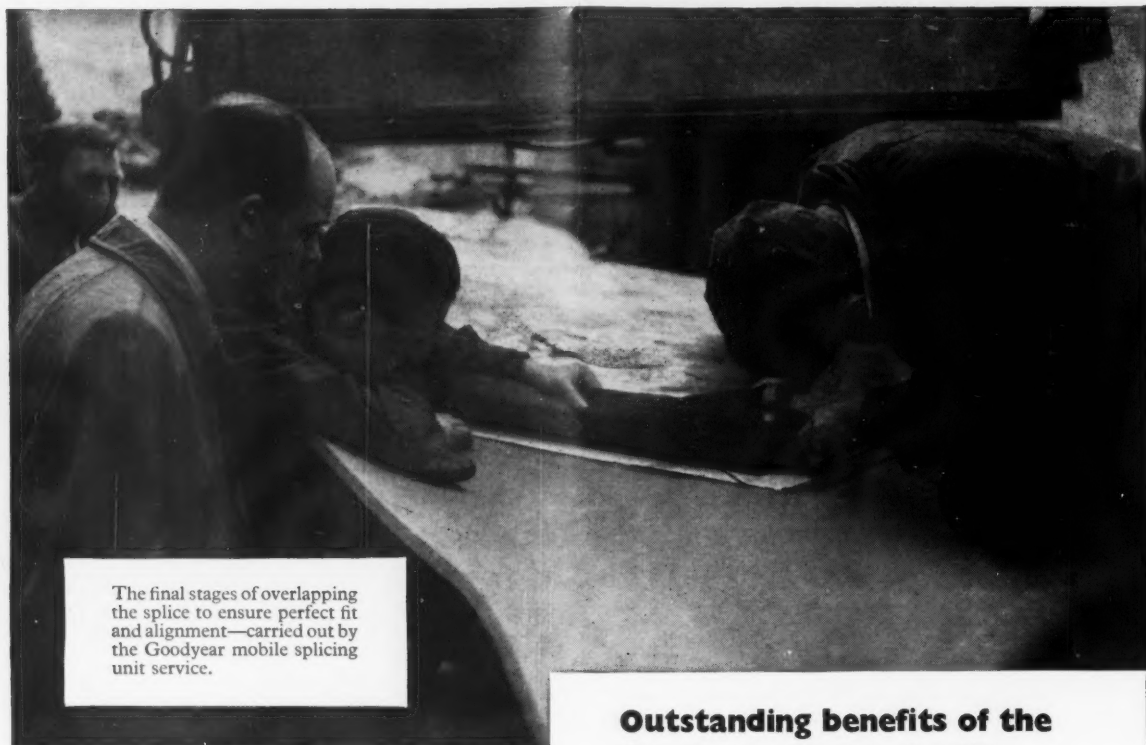
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NOTES AND COMMENTS

Wits Mining Chair now "Plum" Job

One of the difficulties of university education in its technological branches (not least in the mining and metallurgical field) is the problem of how to attract and retain the services of the best scientific brains in competition with industry, which can, and does, offer greater financial rewards. This is a problem to which it is essential that a solution should be found not merely from the point of view of ensuring an adequate level of undergraduate teaching, but even more perhaps in the interests of research.

In the nature of things most research conducted by individual industrial concerns is applied to limited objectives more or less peculiar to the company concerned, and, in the long term, the continued scientific progress of any particular industry lies usually in the hands of the appropriate university faculties and of research associations sponsored either by government or by some industry as a whole. Universities are seldom sufficiently well endowed by the industries, which are dependent upon them, to enable their faculties to attract and hold men who would otherwise be leading figures in the industries concerned, and in the rare case where this is contrived, it is too often on the basis of permitting the men concerned to augment their income by outside professional work, so that relative to industry, the university is paying lower salaries either for second rate, or else first rate but insufficiently devoted, work.

In the long run, this problem can only be entirely solved by industry itself as, whatever government university grants there may be, these can seldom, by the nature of treasury control, be expected to be sufficient to place the university salary scale on an equality with competitive industry, and the final increment to achieve this must come from the industries which stand directly to benefit.

It would of course be a complete misrepresentation to suggest that industry has not already done much in this direction but it is only necessary to look at salaries paid to scientific staff at any university this side of the Atlantic to realize either that the wrong men must be in the jobs or that if the right men are there it must be either on a part-time basis or at considerable personal sacrifice.

A particularly cheering example of the way in which the gold mining industry, at least, is becoming more fully

conscious of where its own best interests lie in this matter is to be found in the news reaching us this week from Johannesburg of the decision to establish a "Chamber of Mines Chair of Mining Engineering" at Witwatersrand University. The effect of this will be to raise the salary of the head of the department of mining engineering from £1,850 a year to not less than £3,000 exclusive of allowances. That this has been possible is largely due to the generous response of the Chamber of Mines, which last year contributed £250,000 towards the university's £1,000,000 appeal.

Nothing is said in the reports, so far reaching us, regarding plans to add to the size of the staff or to raise salary scales throughout the department. Thus, for example, the De Beers Professor of Mining is at present the administrative head of the department, and it is not clear whether this professorship will be merged into the new appointment, or whether the mining department will now rate two separate chairs. Such an arrangement is not unprecedented, and we can conceive of circumstances under which it might be appropriate in the present case, especially if the Chamber of Mines Professorship were to go to a man primarily concerned with gold mining, which could leave coal and base metals to be dealt with separately. However, in the absence of further details this is pure speculation. As regards the rest of the staff in the mining department, there is, of course, as always, the problem of avoiding differential salary scales as between university faculties, but doubtless, if the response to the university's appeal has been as satisfactory from other directions as it has from the gold mining industry, the means will be found for raising the general level of salaries throughout the university. If this is done there seems little doubt that coupled with the new and exceptionally well endowed chair of mining engineering the way should be clear for establishing as well staffed a mining department as any in the world.

It is also interesting to learn that the Chamber of Mines has offered the services of a panel of consulting engineers and mine managers who will arrange for experts from the industry to lecture in special subjects. While such an arrangement is not, and is probably not intended to be, a substitute for strengthening the teaching staff of the department, upon whom must in any case fall the burden of tutorials and demonstrations in addition to the demands

of post-graduate and research work, such an arrangement should add immensely to the lecturing strength of the faculty. Moreover, it goes a long way towards providing that continuing cross-fertilization of ideas as between industry and the academic world which tends so often to be lacking.

It is noteworthy that it is explicitly stated that the Chamber of Mines Professor would be called upon as part of his duties to serve in a consultative capacity to the Chamber of Mines. This provision should assure him of direct and continuing access to the gold mining industry and is thus complementary to the proposal that the industry shall find special lecturers for the department, and it seems likely that the provision should be read in this sense, rather than that the professor will in fact devote any considerable amount of time to doing work for one or other of the members of the Chamber. Support for this view is to be found in a further condition of appointment which specifically prohibits the professor from engaging in private consultative work—a condition, which incidentally, adds point to our observations at the end of the second paragraph of this note.

It may well be no mere coincidence that the endowment of a mining chair at Witwatersrand University should come about at this time. Readers will recall that in last week's issue of *The Mining Journal* we reported on boldly conceived plans by the Anglo American Corporation (and probably the Chamber of Mines as well) to step up the output of mining graduates from Witwatersrand University very considerably, and it would seem a reasonable inference that this week's news from the university authorities does little more than fill in another piece of this pattern.

Legislation Delays Mexican Uranium Exploitation

From time to time there has been talk of uranium deposits found in Mexico, but the government has not made any official comments. Probabilities are that deposits do exist in a number of States and, according to our Mexican correspondent, a recent report from the State of Jalisco indicates that there are "enormous uranium fields" there. He points out however, that it is doubtful that any official exploitation has begun, except on a strictly limited scale.

Under the present law Mexico expropriates lands where uranium is found. Because of this expropriation land-owners are not eager to notify the authorities when uranium deposits are found. There has been a growing move to force a change in the present laws whereby exploration for uranium would be fostered under the conditions of a general plan more or less similar to that followed in the United States. Financial rewards to prospectors and owners of lands where uranium is present would do much to stimulate large-scale exploration, according to Carlos Graef Fernandez, head of the Mexican Physics Society.

The hampering coils flung by these legislative measures are by no means confined only to the future possibility of uranium production.

A graphic picture of the low state of Mexican mining can be gathered from a report received from the Guanajuato Chamber of Commerce. The Guanajuato mining district has 3,400 mines of which only 25 are actively being operated; 300 mines are unworked although concessions are retained by payment of federal licenses, while 3,075 are completely abandoned and part of the national reserve. Mine owners ceased operating when labour demands and taxation got out of control.

The above situation is typical throughout the Republic though not on such an exaggerated scale. However, mining circles insist that salvation of the industry can only come when the government grants drastic reforms.

Another Steel Offer

Steel and politics do not mix. That is the sobering conclusion to be drawn from the terms of this week's offer of the equity holdings of Dorman Longs and indeed of all the steel companies placed on the market by the Iron and Steel Holding and Realization Agency. Here is an industry which has attained its highest peak of production and is still labouring in the wake of a large unsatisfied demand. Orders are piling up much more rapidly than they can be executed. Last month's ingot output was at the rate of nearly 19,500,000 tons a year, and within a few months it seems likely that a round figure of 20,000,000 tons will be reached.

The atmosphere for this new deal is thus highly favourable but Sir John Morison and his advisors have deemed it necessary to offer to investors a prospective yield of £7 2s. 3d. per cent compared with a return of no more than £4 10s. 5d. on industrial shares in general. Two and a half per cent is the extra inducement which has to be offered to steel shareholders as compensation for the risk of a swing of the political pendulum and the resurrection of renationalization.

Apparently investors are cheerfully prepared—indeed they are eager—to accept the risk. Except for Lancashire Steel which looks cheap at 22s., all the steel shares offered to date stand at a premium and it is expected that the Dorman Long equity will be heavily oversubscribed when the lists close this week.

But there are big aggregations of capital still to be unloaded and extensive development schemes to be carried to completion before the re-equipment of the industry is accomplished. Is it too much to hope that until the job is done, the politicians will refrain from meddling?

Portugal

(From Our Own Correspondent)

Foz Do Douro, November 12.

Rumours are again rife regarding the probability of some modification in the export taxes on tungsten ores being made, but in a "milieu" unrivalled for inventive powers these rumours are taken with the proverbial grain of salt. That the matter is under study in high quarters is a fact, but what will be finally decided is very indefinite at present. The heavy decline in tonnages and values caused some very plain spoken representations to be made in the proper quarters and some results are expected when the Council of Ministers again meets. It is said that the pernicious export tax will be removed from tungsten ores, but that everything over Esc. 66.00 per kilo will be taken by the State for exports of tantalite/columbite. As very little of the latter has been or is likely to be exported, the rumour, if correct, will not mean that the trade will jump out of the frying pan into the fire.

After a period of suspension of exports of WO_3 and Mixed WO_3/Sn residues it is gratifying to be able to report that interest is again being shown in this class of material, the grade being a more reasonable category than that recently required by buyers. A contract has just been signed by a German buyer and more is expected to come this way before the end of the year.

Worthy of special mention is the renewal of exports of tin ore to U.S.A. Presumably the ore must be sold somewhere, and with U.K. taking only a very small tonnage attention has turned elsewhere.

South Africa's Mining Machinery Industry

The manufacturing industries established in South Africa during and since the second world war have progressed to the point where a wide range of mining machinery is now being made in that country. In the following article our South African correspondent describes certain of these units and emphasizes the developments taking place in headgear and metallurgical practices.

South African mining practice has always been progressive, but it has needed the growth of secondary industry promoted by the changing conditions of the war and post-war years to provide the necessary impetus to the manufacture of mining equipment within the Union, a step which has brought with it the redesign of locally made equipment to suit South African conditions.

It might be thought that the imminent lifting of import control would check this development once overseas equipment becomes freely available, but indications are that it will probably act as a spur to further progress in this field. At present, all types of mining machinery, with the exception of the largest electric hoists, are made in the country, and the heaviest ship repairs can be undertaken at the ports.

MECHANICAL CLEARING

In recent months, there have been three interesting developments in the field of underground mechanization—which, incidentally, is likely to come more into the picture with more power becoming available. One of these is a South African shovel-loader, with modifications for local conditions. Tests so far have been most encouraging.

The second development is a shovel-loader which uses electricity instead of compressed air to operate it. It uses a single squirrel-cage indirect motor. Another change is that the operator sits at the side of the machine, so that he can see exactly what the shovel is doing. He operates it by means of a foot pedal similar to a motor car throttle, the forward and reverse movement of the loader being operated by a hand level. The shovel rocker arms operate on a turntable deck and can be slewed by a hand wheel. The loader weighs five tons and can load at two tons a minute. The motor runs continuously throughout the shift. A feature is the clutch units which are designed to be extracted quickly and replaced underground. Current tests suggest that although the initial cost may be higher than compressed air loaders, maintenance and running costs will be lower with the new machine.

The third local device now being tried out for centre gully scraping is an automatic controller for winches, the main feature of which is that it dispenses with the need for a driver. Moreover, the short delays at reversals which accumulate over a shift are avoided, and tests have shown

increases in outputs. The controller has a simple adjustment for dealing with the length of travel of the scraper.

HOISTING

Over the past few years it has become clear that the traditional steel headgears are rapidly on their way out. In 1950, Stilfontein erected the first concrete headframe, which is largely a replica of the conventional steel design. But there has been considerable changes since then. At Hartebeestfontein G.M., for example, the headgear at the main shaft looks rather like a lighthouse, while the one at the ventilation shaft looks like an overgrown silo.

An even more radical departure is the headframe at the No. 2 shaft of West Driefontein, where the winders will be housed on top of the headframe, identical to the system used for lifts.

METALLURGY

Another recent development in the gold mining world is the growing attention being paid to the chemical side of extraction processes, reflected in the number of chemical engineers being recruited for reduction plants. This move has, of course, been accelerated by the opening up of uranium and sulphuric acid plants.

Although not yet near the stage of practical application, the suggestion is being mooted that in due course the extraction side of mining will undergo a complete revolution. One possibility is the develop-

ment of suitable flotation techniques which will allow the simultaneous recovery of gold, uranium and pyrite. The basic problems are, of course, the initial capital expenditure and running costs. It would not be too much to say that if these can be successfully resolved and the eventual cost per ton treated brought to a low enough level, the productivity of the mining industry would be greatly expanded. In particular, it could bring the very low-grade uranium content of residues from the Main Reef series within the limits of payability.

Another line of thought is the possibility of using ion exchange as a method of extraction both for gold and uranium. It has emerged from the laboratory stage, and is likely to be investigated further.

One recent development on the reduction side has been the introduction of cyclone classifiers in place of rake types on certain of the new mines, allowing a very considerable saving in capital costs and space.



The main hoisting shaft at Hartebeestfontein G.M.

The Diamond Industry in 1953—I

The following article is an abridgment of the 29th Annual Report of the diamond industry, covering the year 1953, and produced by the publishers of *The Jewelers' Circular Keystone*. The report has been prepared by G. Switzer, associate curator in the Division of Mineralogy and Petrology of the Smithsonian Institution, Washington. In the first portion of the article which appears below, a general report of the world diamond trade during 1953 is given, together with more comprehensive details of the activities of the De Beers Group. In a subsequent issue the final instalment of the article will describe the developments which took place last year in parts of Africa outside the Union and in other diamond producing countries of the world.

Sales of gem and industrial diamonds during 1953 totalled approximately £63,000,000, as compared to £72,000,000 in 1952. Sales effected through the Central Selling Organization on behalf of South African and other producers, and diamonds drawn from the stocks held by the Diamond Corporation, amounted to £61,155,941, a decrease of about £8,500,000 from the previous year. The remainder was divided principally between Brazil, Venezuela and British Guiana.

The chief factor contributing to the decrease in total sales was the decline in demand for industrial diamonds associated with the termination of the Korean war in the middle of the year. Sales of industrials by Industrial Distributors (1946) Ltd. were £17,819,832 in 1953 compared with £23,892,069 in 1952.

World production of diamonds continued to show a gain, total production amounting to approximately 20,200,000 ct., an increase of about 1,500,000 ct. over 1952. Most of the increase is due to increased production in the Belgian Congo (see table below).

Accurate figures regarding diamond production are not available for all countries. Exact figures received from official sources are given in most instances in this article, and where estimates are given they are believed to be reliable.

INDUSTRIAL DIAMOND PRODUCTION

World production of industrial diamonds during 1953 is shown by country in the table. Total production amounted to approximately 16,400,000 ct., an increase of about 600,000 ct. over 1952. The Belgian Congo continues to be the largest producer with about 12,000,000 ct., mostly from the Lubilash sector. Belgian Congo production, primarily crushing board, was approximately 1,000,000 ct. greater than in the previous year.

In June of 1953 Sir Ernest Oppenheimer gave a very significant review of the diamond trade at the annual general meeting of De Beers Consolidated Mines, Ltd. He forecast the decrease in sales by the Central Selling Organization which subsequently developed, and stated that "boom times" had come to an end and that both the gem and industrial sections of the industry were adjusting themselves to normal business conditions.

It was also pointed out by Sir Ernest that the erroneous impression exists that even though the producers do not have large stocks, they mine in such a way as to restrict production in order to maintain an unreasonably high price. Two principals in operation in the diamond trade refute the view. The first is that selling agreements with producers guarantee that however bad general trade conditions may be, sales will not fall below an agreed minimum. As a result there is continuity of production and the diamond mines are kept in operation through bad times as well as good. The second principle is that the industry has equipped its mines to operate at their optimum capacity, and when prices and demand have warranted it, large sums have been spent in reopening old mines or expanding facilities at operating mines.

PRODUCTION IN SOUTH AFRICA

In 1953 total production in the Union of South Africa and South West Africa was 3,318,000 ct. This includes an estimated 100,000 ct. from the State diggings in Namaqualand.

Details of South African production in 1953 show that the De Beers group of mines produced 1,127,834 ct., including 70,559 ct. from Kleinzee, South West Africa. The Premier (Transvaal) Diamond Mining Company produced 1,269,925 ct., while alluvial production amounted to 203,000

WORLD PRODUCTION OF DIAMONDS, 1950-1953 BY COUNTRIES, IN METRIC CARATS
(Including Industrial Diamonds)

	1950	1951	1952	1953		
				Total	Industrial	% Industrial
Africa:						
Angola	538,867	734,324	743,302	729,377	307,000	42
Belgian Congo	10,147,471	10,564,667	11,608,763	12,580,256	12,000,000	98/45¶
French Equatorial Africa	111,407	136,000	163,400	140,144	92,000	66
French West Africa	126,346	101,000	136,080	180,000	120,000	66
Gold Coast	950,000†	1,752,878	2,189,557	2,167,364	1,515,000	85/60¶
Sierra Leone	655,474	475,759	451,426	472,934	322,000	68
South West Africa	488,422	478,075	541,027	617,411	123,000	20
Tanganyika	164,996	108,625	143,023	170,679	73,000	43
Union of South Africa:						
Lode	1,516,194	1,967,272	2,093,138	2,397,755*	1,542,000	77/50a
Alluvial	231,674§	289,063§	282,681§	300,000†	150,000‡g	50
Brazil†	200,000	200,000	200,000	200,000	100,000	50
British Guiana	37,462	43,260	38,305	35,306	21,000	60
Venezuela	60,389	63,226	98,291	84,790	62,000	73
Other Countries	3,000	3,000	5,000	5,000	3,000	60d
Grand Total (Round Figures)	15,232,000	16,917,000	18,694,000	20,080,000	16,400,000	

* Pipe mines under De Beers control. † Includes: (1) Approximately 117,000 carats for pipe mines outside De Beers control, and (2) an estimated 100,000 carats for State Mines of Namaqualand. ‡ Estimated. § Includes an estimated 100,000 carats from State Mines of Namaqualand. ¶ Beeka/Kasai. ¶ European Companies/African producers. a Premier/De Beers. d India, Borneo, Australia, U.S.S.R. g Including the State-owned mines in Namaqualand and 117,000 carats from pipe mines outside De Beers control.

ct., a figure which included 117,000 ct. from pipe mines outside of De Beers' control, with a further estimated total of 100,000 ct. coming from State Mines of Namaqualand. In South West Africa, Consolidated Diamond Mines of South West Africa produced 590,534 ct. compared with 512,874 ct. in 1952 and Industrial Diamonds of South Africa (1945) Ltd. produced 26,877 ct.

THE DE BEERS GROUP

At the end of 1952 the total stock held by the De Beers Company was valued at £311,947, and by the Consolidated Diamond Mines of South West Africa, Ltd., £414,055, both at cost of productions; and the Diamond Corporation stock was valued at £5,782,832 at cost of purchase.

The marketing of gem diamonds is conducted by the Diamond Purchasing and Trading Company, Ltd., and its associated company, the Diamond Trading Company, Ltd. The marketing of industrial diamonds is done through Industrial Distributors (1946) Ltd., and its wholly owned subsidiary, Industrial Distributors (Sales), Limited.

The Diamond Corporation, Ltd., a subsidiary of the De Beers Consolidated Mines, Ltd., was originally organized to market diamonds, but its functions have been taken over by new companies. It now acts as the link between the South African and other producers. It enters into contracts to purchase the production of producers outside the Union of South Africa and South West Africa.

De Beers Consolidated Mines Ltd. produced chiefly from the Wesselton and Bultfontein mines in Kimberley. The Premier Mine in the Transvaal and operated by a De Beers subsidiary is also a major producer, and smaller production outputs are reported from other areas.

The De Beers Consolidated Mines Ltd. is a major factor in the diamond industry because it holds a controlling interest in a number of diamond mining companies, and also in companies having buying contracts with independent producers.

GROUP PRODUCTION

Production from the De Beers Group of mines during 1953 is shown in the following table:

Mine	Ct. Rec'd.	Mine	Ct. Rec'd.
Wesselton ...	379,358	Old Pulsator Tailings	73,721
Bultfontein ...	409,464	Misc. Sampling	289
Dutoitspan ...	1,137	Stadium Heap	15,110
Bultfontein Cyl.		Kleinsee	70,559
Lumps	5,553	Jagersfontein	132,852
Wesselton/Dutoitspan		Koffiefontein	
Cyl. Lumps	16,778	Sampling	1,032
De Beers Sampling ...	1,092	Sundry Finds	17
De Beers Cyl. Lumps	9,755		
Kimberley Floors ...	11,115	Total	1,127,834

Mining operations were continued throughout the year at the Wesselton, Bultfontein and Jagersfontein mines, with total production from the three amounting to nearly 6,000,000 ct. At the Dutoitspan Mine only development work and sampling was accomplished, while sampling was completed at the De Beers mine in April of the year. At Kleinsee 8,038 more loads were washed than in the previous year and production increased by 44,915 ct. Sampling at the Koffiefontein Mine was completed in October of the year and the mine was closed. Digging operations continued at the Noortgedacht alluvial sites with a slight decrease in production to 11,618 ct.

The Diamond Corporation Ltd., a subsidiary of De Beers, acts as a link between South African and other producers.

ALLUVIAL DIGGINGS

The alluvial diggings have shown little change as there is little available new ground and old ground is becoming exhausted.

Total uncontrolled alluvial production from the Union of South Africa was 202,715 ct., a production quota including that from small pipe mines operating outside the control of De Beers which, according to the annual reports of the companies, amounted to approximately 117,000 ct.

The Consolidated Diamond Mines of South West Africa Ltd. hold the diamond mining rights to the deposits comprising a northward extension of those in Namaqualand. Production last year was 590,534 ct. of this, total prospecting accounted for 13,944 ct. and monthly production averaged 49,211 ct., an increase of 6,488 ct. per month over the previous year. The total weight of ground handled in stripping, mining and prospecting was approximately 14,200,000 tons. The overall yield was equivalent to 3.3 ct. per 100 loads.

OTHER PROPERTIES

The State owned and operated State Mines of Namaqualand are located to the south of the mouth of the Orange River. Official announcements during the year revealed that the State diggings are slowly becoming worked out, and for that reason the Government did not take up £2,360,000 of its quota of diamond sales during 1952. It was also stated that the State has kept the annual production constant at 100,000 per annum, a policy which has helped to preserve the life of the diggings.

In 1953 only three pipe mines operating outside the De Beers Group showed results of importance. These properties were the Star Diamond Mine 12,017 ct., Mallin Diamond Mines Ltd. 96,551 ct. and Treasure Trove Diamonds Ltd. 8,613 ct., a total of 117,181 ct.

The Star Diamond Mine is located 20 miles northwest of Winburg, Orange Free State. The main shaft has been sunk to a depth of 254 ft. in a kimberlite fissure. Treatment of 42,398 loads of kimberlite and retreatment of 11,048 loads of tailings yielded 12,017 ct. of diamond. The average yield per 100 loads of kimberlite was 26.1 ct., while the average per 100 loads of tailings was 8.5 ct. 1952 production was 11,179 ct.

Mallin Diamond Mines Ltd. is located in the Rustenburg district, Transvaal. The mine is serviced by two vertical shafts. The lowest depth being worked is the 500 ft. level. The diamonds are confined to a narrow kimberlite fissure averaging from 2½ to 3 ft. in width, and having a strike length of approximately 12,000 ft. According to a report by the consulting engineer, during 1953 a yield of 96,551 ct. was obtained from 61,500 tons of ground treated for an average yield of approximately 123 ct. per 100 loads. This is probably the highest yield of any diamond mine in the world. The deposit is reportedly proved to a depth of 1,400 ft., and the yield steady to the greatest depth worked, 650 ft.

Treasure Trove Diamonds Ltd. holds a number of properties but only the Doornkloof and So-Ver Diamond Mines were in production during 1953. Treatment of 50,692 loads yielded 8,613 ct. of diamond, for an average yield of 10.12 ct. per 100 loads. Of the total production 5,133 ct. was yielded from mining and 3,480 ct. was yielded from retreating concentrates. Price obtained per ct. was £12 2s. 6d., excluding recoveries from retreatment of concentrates. Production in 1951 and 1952 was 5,356 and 4,691 ct. respectively.

It was reported during the year that the New Eland Mine, in the Boshof area, Orange Free States, is to be re-opened soon.

Recent Work at the Fulmer Research Institute

Many prominent representatives of Government, science and industry were present at the Fulmer Research Institute, Stoke Poges, on November 2, when a new engineering and mechanical testing laboratory (illustrated on this page) was officially opened by H.R.H. the Duke of Edinburgh.

This now well-known establishment was founded in 1946 to undertake sponsored research. Its equipment and the services of its team of experts may be "hired" by sponsors, to whom subsequently belong the results of the investigation, including any patents arising therefrom. Any excess of income over expenditure is converted into equipment to improve the research facilities available.

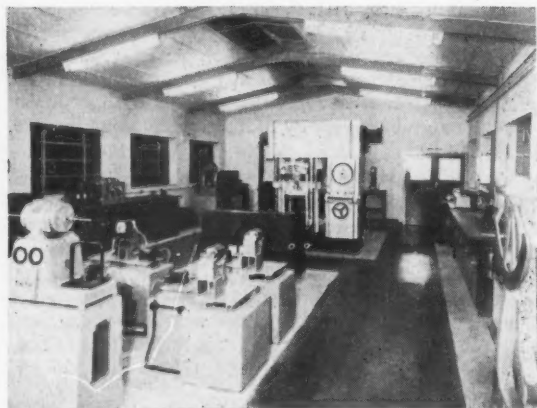
During the past eight years the Institute has never stopped growing. In the first ten months of the current year the volume of research undertaken amounted in value to £90,000, compared with £24,000 for the whole of 1947. There are now more than a hundred sponsors, on whose behalf over 1,100 investigations have been undertaken.

ESTIMATION OF NIOBIUM IN ORES

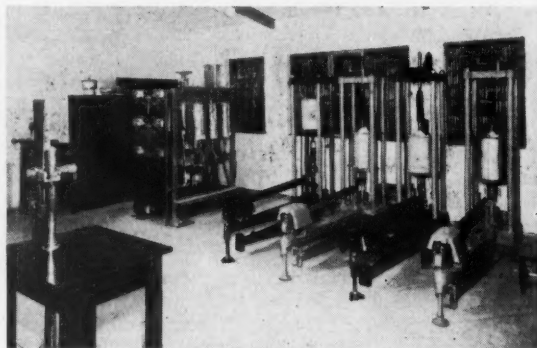
Work at Fulmer has resulted in an accurate and rapid method of estimating niobium in certain deposits. The determination of niobium and tantalum, in low-grade ores presents difficult problems. The method regarded until quite recently as the most efficient is based on chromatographic absorption, but it is time-consuming and is not entirely suitable for field work. When the problem was referred to the Institute, analyses were taking five days. At that period the search for niobium had been intensified and much attention was being devoted to the improvement of analytical techniques.

After investigating existing chemical and spectrographic methods, workers at the Institute succeeded in developing a spectrographic solution method, by which both niobium and tantalum could be determined quite rapidly. Practical trials in the Sukulu soils, Uganda, showed that the accuracy obtainable was extremely good, being quite adequate for the purpose and fully on a par with that of the best analytical methods.

The procedure is briefly as follows: The sample is digested for an hour with 25 per cent hydrochloric acid. It is then diluted and hydrolized with sodium sulphite, filtered, ashed, and taken up in hydrofluoric acid, ammonium molybdate



Equipment in the new engineering laboratory with fatigue machines in foreground and a 50-ton tensile testing machine



The creep testing room in the new engineering laboratory

being added as internal standard. The solution is sparked from a Feldman type cup and the line Nb 2698 A is compared with Md 2688. The tantalum is estimated visually by the line 2665.

In addition to its usefulness for such analytical determination, the spectrographic method seems very suitable for geochemical prospecting.

WORK ON METALLURGICAL PROBLEMS

The Institute is equipped primarily for work on metallurgical problems and has made outstanding contributions to recent progress in this field. Commercial development of an entirely new method of aluminium extraction by catalytic distillation is already yielding the sponsors a substantial dollar return in patent rights. Similar methods are being applied with encouraging results to the preparation of pure titanium.

Visitors at the Open Day saw many uncommon metals and alloys on which the Institute is carrying out research. Samples of titanium, zirconium, molybdenum and uranium were on view together with alloys made from these metals by melting in an argon arc furnace. This unit has been specially designed for melting refractory metals in argon. The highest temperature so far attained is near 3,400 deg. C.

New materials developed at Fulmer include the "Alminal 500" series of aluminium-copper-cadmium alloys, which are said to be easier and cheaper to handle during fabrication. One alloy contains four to five per cent copper and a small quantity of cadmium and is reported as showing a "remarkable facility" for hot work and for this reason is cheaper to fabricate than orthodox aluminium alloys. The properties of the alloy are said to be equal to those of most normal high-strength alloys and the presence of the cadmium is said to give it freedom from room temperature ageing. This makes it unnecessary to form the alloy immediately after solution treatment and eliminates the need for refrigeration required by some other aluminium alloys.

TUNGSTEN CARBIDE DRILL STEELS

Another undertaking of direct interest to the mining industry was an investigation instituted to determine whether the residual stresses set up in the tungsten carbide type of rock drills during the brazing operation were responsible for the tips fracturing upon cooling after heating. This work, which has been completed, was referred to in our issue of October 10, 1952.

OPENCAST LUBRICATION—II

Lubrication at the Opencast Mining Face

The first instalment of this article which appeared in *The Mining Journal* of November 12, 1954, discussed the methods utilized in the lubrication of earth moving machinery in opencast mining and quarrying operations. This concluding article discusses factors concerned with the lubrication of the compressed air units employed at the working face, mentioning specifically the airline lubricator. The article in its entirety is a condensation from *Earth Moving Machinery Lubrication* published by Wakefield-Dick Industrial Lubricants Division, C. C. Wakefield and Company Ltd.

The air compressors which are largely used to operate rock drills, pneumatic picks and similar tools in opencast mining and quarrying operations are in the main relatively small portable machines designed to operate from three to six tools.

Compressed air tools are generally designed to run at 80 lb. p.s.i. pressure with a certain degree of latitude. For efficient operation the air must be dry and clean, and the exclusion of dirt is largely a matter of fitting an air cleaner to the compressor air intake and maintaining it properly. A light lubricating oil is the best cleaning medium.

In the past, many different types of oil have been tried for compressor lubrication, but experience has proved the superiority of a detergent, heavy duty lubricant of the type originally evolved for diesel engines. The naturally high oxidation resistance of the base oils from which these lubricants are compounded is enhanced by an anti-oxidant and thus the tendency to gum formation is minimized.

AIR LINE LUBRICATORS

An efficient method of lubricating a pneumatic tool is by an air line lubricator which feeds a supply of oil as a finely divided spray into the tool so that the entire working mechanism is covered. To fulfil this function, C. C. Wakefield and Co. Ltd. manufacture "Ayrlyne" lubricators in two main types which are well tried in service.

The cartridge type is fitted with felt plugs which are free to move in their holders and have leather washers on their inner ends. When the air pressure is applied, it forces the plugs outwards and lifts the leather washers off their seats, allowing the oil to flow through the oil outlets into the air

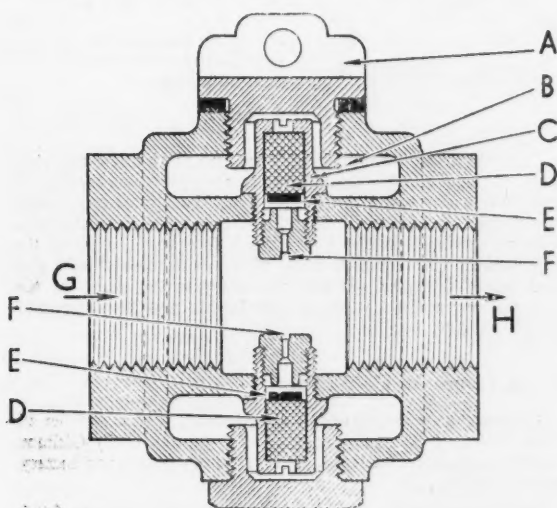
stream. In this way finely atomized oil mist is deposited over the working parts of the tool. As soon as the air supply is cut off, the air pressure in the oil reservoir forces the felt plugs inwards towards the air passage and the leather washers to their seats, so shutting off the supply of oil.

In the type of lubricator fitted with worsted plug trimming, the oil in the reservoir passes by capillary action along a worsted plug carried in a brass holder. The passage of air past this holder draws the oil through the outlets and carries it in an atomized condition in the air stream. Other lubricators produced by the manufacturers include the DP 50 Pattern Sight Feed Mechanical lubricator which can supply from one to sixteen feeds in a single bank and is widely used for lubricating the cylinders of double-acting air compressors and the larger diesel engines.

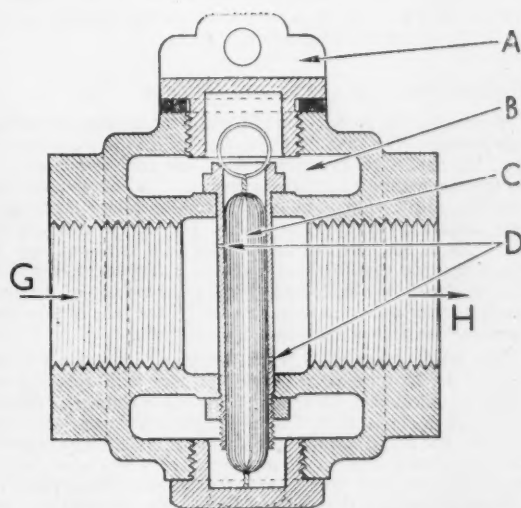
FLUIDITY AT LOW TEMPERATURES

The act of compressing air generates heat which is largely dissipated in the aftercooler, receiver and mains, and a lubricant is needed that remains fluid at a low temperature so that it can be easily atomized in the lubricator to penetrate into the minute clearances between the working parts of the tool. As atmospheric temperatures vary considerably in different parts of the world, Wakefield rock drill oils are made in a range of viscosities to suit all conditions. Those intended for cold and temperature climates remain fluid even when cooled down to almost—17.8 deg. C.

In wet drilling the problem of wear and corrosion is intensified by leakage of water into the drill. The Wakefield Patent RD oils are formulated to combat these conditions on the principle of causing the lubricants to form a water-in-oil emulsion.



Section through Ayrlyne lubricator fitted with cartridges. (A) filler cap, (B) oil reservoir, (C) cartridges, (D) felt plugs, (E) leather washers, (F) oil outlets, (G) air inlet, (H) air outlet

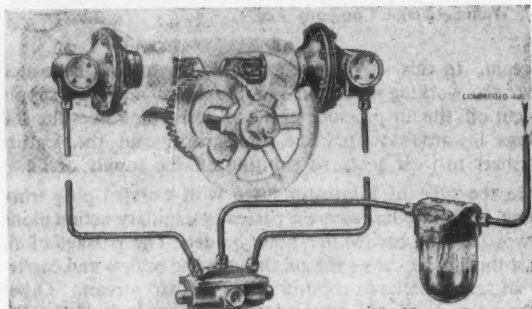


Section through Ayrlyne lubricator fitted with plug trimming. (A) filler cap, (B) oil reservoir, (C) worsted plug, (D) oil outlets, (G) air inlet, (H) air outlet

MACHINERY AND EQUIPMENT

A Pneumatic Remote Control System for Valves

The Telektron-Hard System, which is fully patented, has been developed and designed to meet the need in industry for a simple and universal remote control for valves. The system is announced by Telektron (Great Britain) Ltd.



Schematic layout of two-motor unit

The system is operated by compressed air and remains unaffected by changes in surrounding temperatures and pressures. The units are available in standard two-motor and four-motor sets, incorporating either the standard or the alternative double-power tandem motor.

The principle of operation is that the Telektron-Hard motor set, mounted on an adapter bracket, is fitted on to the valve body and the toothwheel is fixed on to the valve shaft or spindle. The handwheel is then fitted above the toothwheel for manual operation. The air supply is piped to the central connection on the control switch via the oil mist lubricator. Each air motor is supplied by a line from a part on either side of the control switch.

When the control switch plunger is moved to the open position, air is fed to the appropriate motor which commences to work in a series of short strokes, rotating the toothwheel in the desired direction by means of the ratchet and teeth. When the control switch is replaced to the central "off" position, the air in the line is bled off through the control switch and the operating arm returns to home and lifts the ratchet off the toothwheel ready for manual or reverse operation.

Statistics for a standard two-motor unit show air pressure of 15 to 150 p.s.i., air consumption of 1 to 5 cu. f.p.m., a speed of 1/10 to 16 r.p.m. and the available torque approximately equal in lb./ft. to applied air pressure in p.s.i.

Couplers for Mine and Quarry Haulage

Foreseeing the probable need for automatic couplers in haulage systems other than railways, the English Steel Corporation Ltd. has applied its experience in railway coupler manufacture to the mining and quarrying industries. The couplers are self-centring, self-levelling, are suitable for the rotary dumping of cars and are always ready to couple. They are so arranged that the locks of couplers can be retracted to a fixed position. By this means the cars, if desired, can be buffed together without the couplers becoming locked. Finally, the rigidity of the automatic coupler pulls the vehicles back to the rails if they tend to stray, thus decreasing danger of derailment.

The E.S.C. range of industrial couplers is suitable for cars from 2 to 30 tons capacity and includes such types as the Willison, A.S.F. and Alliance. The Willison coupler is already in service in mines of the United Kingdom on man-riding cars. The half-size unit is intended for small cars up to 2 tons capacity, is designed with maximum drawbar pull of 5 tons with a safety factor of eight, and tests from a typical batch have proven a withstand against static pull of 59 tons. The three-quarter size is standard and is recommended for cars between 2 and 10 tons capacity at maximum drawbar pull of 9 to 10 tons with a safety factor of eight. This coupler under static pull has withstood

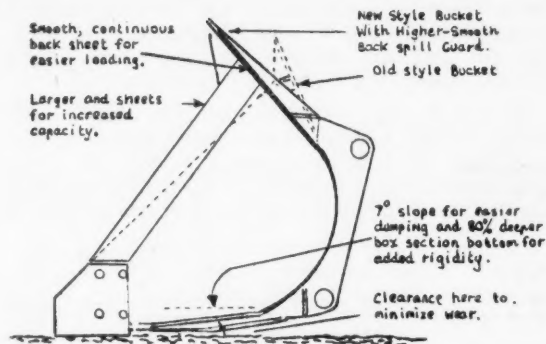
a load of 90 tons. Other units in the Willison range include the three-quarter heavy duty unit with drawbar pull of 12½ tons and can withstand a static pull of 110 tons, and the full size coupler for use on cars ranging between 10 to 30 tons capacity and has a strength of over 180 tons. This latter equipment is recommended for ore carrying cars of the heavier "Granby" types.

The E.S.C. Alliance half-size automatic coupler is a knuckle-type coupler and the design has been proved in mining service. This coupler has such features as pulling lugs and pin protectors as well as an anti-creep device, and is normally supplied with a safety factor of eight and a drawbar pull of 5 tons. The E.S.C./A.S.F. coupler is supplied as a complete unit with draft gear and there is almost a complete absence of snatch between two mated couplers. This coupler is designed to withstand a drawbar pull of 9 to 10 tons.

While these couplers are now specifically designed for use in mines and quarries, one possible application which might be considered would arise in the particular conditions existing at the Pakistan salt range operations, described in *The Mining Journal* of October 1, 1954, where a train is driven into a large-size adit for direct haulage work.

A New Earth Moving Bucket

One of the Allis-Chalmers HD5G's recently imported by MacKay Industrial Equipment Ltd. was the first of these machines to be fitted with a newly designed bucket. This bucket is rated at 1½ cu. yd. capacity and has a heaped capacity of 1½ cu. yd. The back sheet of the new bucket has been brought further forward at the top and the spill guard extended, reducing the chance of spillage over the back of the bucket. The back of the new bucket is smooth and has no ledges where earth or sand can accumulate and fall on to the tractor when the bucket is raised.



The HD 5 bucket

The rear of the bottom sheet is inclined at an angle of 7 deg. This results in a more gentle curve in the interior of the bucket and gives easier loading with less wear. Easier loading is also contributed to by the elimination of the angle piece formerly used on the inside of the bucket back sheet at the base of the spill guard. The increased angle of the bottom sheet will give even easier dumping. It will also increase the depth of the box section in the bottom of the bucket and therefore give greater rigidity.

British Lamps for Gold Mines

The signing of an important new contract with a number of West African gold mining companies is announced by Oldham and Son Ltd., the mine lighting, electrical equipment and battery manufacturers.

The contract is for the hire and maintenance of over 6,000 Oldham miners' cap lamps. The West African companies include the Ashanti Goldfield Corporation, Bibiani (1927) Ltd., Ariston Gold Mines (1929) Ltd., and Gold Coast Main Reef Ltd.

METALS, MINERALS AND ALLOYS

COPPER.—Copper has continued tight in the United States in spite of the releases from the stockpile. Increasing demand for consumption and the fact that not all of the diverted copper has yet reached industry are the chief factors, but there is the sobering thought, too, that this copper will have to be put back. However, for the present, and as far ahead as can be seen, it would be difficult to consider starting to pay back copper. Latest figures from the Copper Institute show that stocks of refined copper in America fell from 47,666 tons in September to 32,515 tons in October so that, at that rate, stocks would be completely wiped out in a couple of months.

Chilean devaluation of the peso in terms of the U.S. dollar, which was anticipated in this column last week, has been made a fact. It is still not clear exactly how the devaluation will affect the copper companies. Reports have it that for the time being at any rate they will have to adhere to the old rates of 19.37 and 110; but if profits tax is to be at the rate of 75 per cent it would be fantastic if these penal rates were in fact retained. Whether devaluation will be as useful as it ought to be will depend on whether it is allowed to cause any appreciable rise in the domestic price level.

In this connexion it is important to remember that the labour contracts at Chuquicamata and Potrerillos expire at the end of the year and have to be renegotiated shortly. This fact probably has a bearing on the resignation on Wednesday of Chile's all-party Government. The state of siege, declared when the dispute at El Teniente was in progress, has not yet been lifted and its continued existence has led to much criticism in Congress, as a result of which the Cabinet resigned. It may be that the Government would have liked to retain the state of siege until new contracts had been agreed at Chuquicamata and Potrerillos; but Congress is much more left wing than the Government and much less inclined to blame labour unrest on Communist infiltration.

The dispute between the African Mineworkers' Union and the Rhodesian Chamber of Mines on the Africans' claim for higher pay has been referred to arbitration.

LEAD.—The strike which closed all Australian ports ended during the week-end and thus lifted the threat to the flow of Australian supplies. However, the general feeling was that the strike was called off only to avoid trouble at Christmas time. What is quite clear is that (a) the dispute has not been solved, (b) the Government are proceeding with their plans for recruiting more dock labour and (c) the harbour workers—extremely militant by repute and backed by the Parliamentary Labour Party—are determined to fight for the rights that they are about to lose. Altogether, everything points to more trouble early next year.

In New York the market had been steady but interest shifted when the strike was called off. Government buying is still propping the price of 15 c. per lb. and reports of a heavier flow of scrap are interpreted as meaning that no further advance for lead is thought likely. The flow of scrap was heavy enough to push up the smelting charge by \$5 per ton. American refined stocks of lead held by smelters and refineries on October 1 were 79,190 tons against 72,140 on September 1 and 42,613 a year earlier.

The Spanish Ministry of Industry has raised the export selling price of foundry lead in bars to 10,058 pesetas per tonne from 9,860.

TIN.—Tin in New York has remained the quietly steady market that it has been for weeks past. During the week, spot Straits worked up from 90.25 to 91.50 c. per lb. and *Iron Age* reports a pleasing pick up in tin plate output.

The Australian Minister for National Development has announced that Australia had approved the ratification of the International Tin Agreement.

The November letter of A. Strauss and Co. discusses the continuing enigma of the Bolivian industry. (It will be recalled that the Cabinet was reshuffled following a mass resignation a few weeks ago to facilitate, it was said, Government policy in the mines.) The letter quotes Mr. Marshall Barnes, an American securities analyst recently returned from Bolivia, "that actual

production in the mines has dropped as much as 50 per cent since nationalization . . . that block caving in the mines had virtually halted, that new developments and exploration had been greatly neglected to the serious detriment of future production . . . that reckless waste of the country's tin mining resources will become progressively worse with the passage of time."

It is extraordinarily difficult to get any accurate information on Bolivian mining at the present time and there is nothing in Mr. Barnes' general picture that is implausible. At the same time, some facts are against some details of it; for instance, *Foreign Commerce Weekly* quotes July Bolivian mine output as the highest since January, 1953, and though this need not contradict charges of reckless mining and neglected development it cannot be squared with "a production drop of 50 per cent since nationalization." An even more substantial fact is that arrivals of Bolivian ore in the United States have been well kept up. Finally, Mr. Barnes apparently claimed interviews only with "competent men" with "first-hand knowledge" of the Bolivian mines; phrases which are capable of much variety of meaning. On the whole it might be better to assume that Mr. Barnes was not 100 per cent correct but that, on the basis of past experience, might be more nearly right than wrong.

A. Strauss then goes on to estimate the effect on the Tin Agreement's working of a decline in Brazilian output of 25 per cent, and reaches substantially the same conclusion as that advanced in these columns on October 22 (page 448), namely that once American stockpiling ends and the first 10,000 tons have gone into the buffer stock, world production will need to be cut by about an eighth (or as we estimated by between 10 and 15 per cent) to keep supply and deviation balance.

Perhaps these mathematical forecasts are not, however, so helpful as a consideration of the effects on American thinking of any appreciable decline in Bolivian supplies. Assuming the Americans have the sweetener to treat them, Bolivian ores are, aside from the stockpile, the only reasonable reliable supplies in wartime for the United States. Consequently, the rest of the industry might lose more from a big decline in Bolivian output through American panic substitution measures than it would gain from a diminution of supplies. Strauss states that some American manufacturers consider the shift away from tin to have been overdone while others consider that total can demand is growing rapidly particularly for beer. No doubt this is true; but tin is now plentiful and the time to watch reactions is when arrivals of Bolivian ore begin to drop off.

ZINC.—Zinc has been a more cheerful market in New York ever since the publication of the October stock figures. There has been some sporadic buying and the general undertone has been steady but it would be still a sick market without reliable Government buying.

There has been some useful buying on behalf of galvanizers—the chief consumers—as indeed there ought to be with constructional work of almost all kinds at record levels (industrial building is the only exception and that is extremely good). *Iron Age* reports one mill booked for galvanized sheet till March, 1955. The steel industry itself is back to 80 per cent capacity.

ASBESTOS.—According to the Philadelphia organ, *Asbestos*, production and demand for asbestos fibre is currently running at a high for the year. This is in line with the usual seasonal demand for fibre, but even so, there is no shortage in any of the major grades, total demand still being below the potential production capacity of the producers.

ALUMINIUM.—With the total production for the first nine months of 1954 in the United States at 1,087,189 s.tons, a new all time high aluminium production record is in sight. The current nine months' figures compares with 927,867 s.tons produced in the corresponding period of 1953. Despite the fact that aluminium production has now broken through the million ton mark—a total not attained in 1953 until the production figures were available for the first ten months of the year—stocks of aluminium at reduction plants have been appreciably reduced and are reported at approximately 48,500 s.tons.

MAGNESIUM.—Magnesium production in the U.S. continues at a lower level than last year or than the peak year of

1952. Primary production for the first nine months of this year totalled 54,849 s.tons compared with 74,040 for the corresponding period of 1953. Magnesium production in the States is now coming exclusively from The Dow Chemical Company's plant at Freeport in Texas and from the Government owned plant at Velasco also in Texas which is being operated on the Government's behalf by Dow Chemical. It certainly seems as if the Government's policy in closing down the majority of their high cost plants, brought back into production during the Korean war, has been more than justified as despite falling production producer's stocks have risen from 8,166 s.tons at the beginning of the year to 15,574 at the end of September.

MANGANESE.—According to data released by South African Manganese Ltd. the production of manganese ore in the Union for the first six months of this year was 404,517 s.tons compared with 432,617 s.tons in the corresponding period of 1953. Of this total 172,832 s.tons contained up to 40 per cent manganese, 177,376 s.tons contained between 40 and 45 per cent manganese, 40,241 s.tons contained between 45 and 48 per cent manganese, and 14,068 s.tons contained over 48 per cent manganese. Manganese exports during the six months to June, 1954, totalled 281,928 s.tons, valued at £1,732,962, compared with 401,789 s.tons valued at £2,332,257 in the corresponding period of 1953.

QUICKSILVER.—Italy continues to increase her exports of quicksilver and figures now released covering the first nine months of this year show that 1,775 tons have been exported as against 876 tons in the same period in 1953.

TUNGSTEN.—Prospecting in the Hohe Tauern Mountains in Austria has yielded wolfram ore deposits, and boreholes sunk near Mallnitz have revealed the existence of ore over a wide area. Elsewhere, the Turkish minister for development has announced that research carried out by the Turkish Geological Institute near Broussa has resulted in the discovery of wolfram ore deposits of considerable extent, and with the metal content varying from 0.5 to 1 per cent.

Iron and Steel

The latest figures of iron and steel production emphasize a new and high prosperity of this important branch of British industry. The rising trend of pig iron production has been resumed and steel output now running at an annual rate of 19½ million tons has reached its highest peak. The improvement moreover is not confined to this industry. Mr. Rollman, head of market division of the European High Authority has spoken of a boom equal to that which followed the outbreak of hostilities in Korea which is reflected in a flood of orders far in excess of the maximum capacity of the steel workers in Western Europe. The steel works of the Community he affirms have now sufficient orders for the next four to six months and some firms have bookings for delivery in the third quarter of next year.

Across the Atlantic the improvement is less pronounced. But there too a new hopeful tone is developing and outputs of 80 per cent of rated capacity are expected before the end of the year.

The London Metal Market

(From Our Metal Exchange Correspondent)

The downward drift apparent last week in tin prices has been halted and some recovery has taken place, although confidence has been somewhat shaken and the future course of the market seems rather uncertain. Production is ample to meet consumers' requirements, and of course America is still taking considerable quantities of metal off the market under long-term contracts. The existence of these contracts no doubt has helped to sustain the market at its recent levels. On Thursday morning the Eastern price was equivalent to £734½ per ton c.i.f. Europe.

Some easiness was shown in copper prices at the end of last week, probably brought about by the Chilean devaluation of the peso. However, it is now understood that the American copper companies operating in Chile will still have to convert their dollars at the old rates for the time being, so that there is really no change in the market position and supplies remain

tight. In America the relief afforded industry by the release of metal from the stockpile is not having such immediate effect as at first appeared, as most of the metal is in the form of cathodes which have to be remelted and recast into the required shapes. This operation, besides costing money, also takes time.

Firm conditions have been a feature of the lead market, and on Monday the backwardation widened to about £7 per ton, but with the first-half-November position out of the way this contracted to about £4 10s. Supplies of prompt metal are still rather scarce. Buying for Russian account goes on steadily, and in the aggregate must amount to quite sizeable quantities.

The improvement in the London zinc price which followed the news of the sharp decline in American stocks of slab zinc in October has not been maintained, and quotations seem to be drifting downwards again. It is not known what quantities of zinc were purchased for the U.S. stockpile for November, but it is understood that producers there offered rather larger tonnages than they had done previously.

Closing prices and turnovers are given in the following table:—

	November 11		November 11	
	Buyers	Sellers	Buyers	Sellers
Tin				
Cash	£717½	£718	£730	£732
Three months	£714½	£715	£725½	£727
Settlement		£718		£732
Week's turnover	1,025 tons		710 tons	
Lead				
Current month	£111	£111½	£109	£109½
Three months	£105½	£105½	£104½	£104½
Week's turnover	3,100 tons		3,400 tons	
Zinc				
Current month	£81½	£82	£81½	£81½
Three months	£81½	£82	£81½	£81½
Week's turnover	2,875 tons		2,850 tons	
Copper				
Cash	£280	£282½	£279	£280
Three months	£268	£268½	£268	£268½
Settlement		£282½		£280
Week's turnover	4,150 tons		5,325 tons	

OTHER LONDON PRICES — NOVEMBER 18

ANTIMONY

English (99%) delivered,	
10 cwt. and over	£210 per ton
Crude (70%)	£200 per ton
Ore (60% basis)	22s./24s. nom. per unit, c.i.f.

NICKEL

99.5% (home trade)	£483 per ton
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OTHER METALS

Aluminium, 99.5%, £156 per ton	Osmium, £46 oz. nom.
Bismuth	Palladium, £6 15s. oz.
(min. 2 cwt. lots) 16s. lb.	Platinum, £30/£31
Cadmium (Empire), nominal	Rhodium, £43 10s. oz.
Chromium, 6s. 5d./7s. lb.	Ruthenium, £22 oz.
Cobalt, 21s. lb.	Quicksilver, £110/£111
Gold, 250s. 10d. f.o.z.	ex-warehouse
Iridium, £39 oz. nom.	Selenium, 35s. 9d. nom.
Magnesium, 2s. 4d. lb.	per lb.
Manganese Metal (96%-98%)	Silver 74½d. f.o.z. spot and
£225/£262	74d. f.d.
Osmiridium, £40 oz. nom.	Tellurium, 15s./16s. lb.

ORES, ALLOYS, ETC.

Bismuth	50% 7s. 3d. lb. c.i.f.
	40% 6s. 3d. lb. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (semi-friable) 48%	£12 8s. 0d. per ton c.i.f.
" Refractory 45%	£12 14s. 0d. per ton c.i.f.
" Smalls 44%	£8 5s. 6d. per ton c.i.f.
Magnesite, ground calcined ..	£26-£27 d/d
Magnesite, Raw	£10 - £11 d/d
Molybdenite (85% basis) ..	102s. 4d. - 103s. per unit c.i.f.
Wolfram and Scheelite (65%) ..	190s. 0d./193s. 0d. - U.K.*
	Gov't Stock d/d 194s. 0d. plus charges
Tungsten Metal Powder ..	16s. 10d. nom. per lb. (home)
(98% Min. W.)	
Ferro-tungsten	13s. 10d. nom. per lb. (home)
Carbide, 4-cwt. lots	£37 6s. 3d. d/d per ton
Ferro-manganese, home	£54 15s. 0d. per ton
Manganese Ore Indian c.i.f. Europe	
(46%-48%)	68d./70d. per unit nom.
Brass Wire	2s. 9½d. per lb. basis
Brass Tubes, solid drawn ..	2s. 2d. per lb. basis

* ex-Government stock for prompt delivery from November 19

THE MINING MARKETS

(By Our Stock Exchange Correspondent)

Markets began the week uncertainly. Gilt-edged and industrial were quiet and easier due, in part, to the unknown result of the Liverpool by-election and also to the immense sums of money now being raised by means of new issues. This means that a flow of institutional funds into ordinary market channels is temporarily checked.

Kaffirs also started off under a cloud but later, following a lead from Johannesburg picked up after dealings began for the new account. Consolidated Mines Selection recovered from last week's setback but otherwise there was little change among finance houses. The Consolidated Goldfields report, however, made interesting reading. Apart from the encouragement given by the recent increase of dividend from 15 to 17½ per cent the figures given show the very strong asset position when compared with the current market valuation.

Among individual mines, some of the older properties recorded small but important improvements. Encouragement was derived from hopes that Mr. Havenga may, in fact become the new South African Premier and strong rumours that the bank rate in the Union may be lowered in the near future. Randfontein, Robinson Deep, West Rand Consolidated and Western Reefs went ahead sharply and Grootvlei and Vogelstruisbult also hardened on the improved outlook. Luipaards Vlei were better in advance of the chairman's statement but afterwards fell back sharply. Details given about uranium production and faulting of the reef were considered disappointing. Sub Nigels remained unchanged. The chairman was notably cautious concerning the possibility of maintaining the output at the present level indefinitely. Doornfontein were very good. The company has evolved a new mechanical method of sorting ore that will mean better crushing and quicker elimination of waste.

The Orange Free State shared the better feeling and all round gains occurred. Reports that the Harmony property may have fairly regular reefs with little major faulting except in outlying portions of the mine proved encouraging. The official inclusion of Merriespruit in the list of uranium producers brought about

a rise in the shares. Elsewhere, most of the market favourites spurred beyond recent support levels.

West Africans had a breather after last week's sharp gains, but Wednesday saw small all round improvements. The good Gold Coast Main Reef profits for the September quarter caused the shares to move against the general trend. Amalgamated Banket quarterly figures were also well received.

In the miscellaneous gold section, there was little change but Cam and Motor were steady after the announcement of the capital expansion scheme and Goldfields Rhodesian Development were higher on the disclosure of the company's underlying assets.

Diamonds were rather neglected but Consolidated African Selection Trust dropped in front of the dividend announcement. Potgietersrust Platinums gained the turn.

Coppers presented a rather mixed appearance, improving towards the end of the account. Rhodesia-Katanga rose on speculative buying. An announcement concerning the future of the property is expected before long. Tharsis were again good but Selection Trust met further profit-taking.

Tins in both Eastern and Nigerian sections were quiet disclosing only minor fluctuations. The strong asset position of many of the Eastern mines remained an important steadying factor in the market.

Consolidated Zinc rose after the news of the large new issue had drawn attention to the possibilities of this property. Mount Isa were also popular; recently, the dividend was raised and now a tentative proposal has been made for the construction of a uranium plant.

Elsewhere, Consolidated Murchison attracted speculative buying and South African coal shares came in for attention.

Canadians were influenced by the better tone of Wall Street. Features were Noranda, which enjoyed a sharp jump, and International Nickel were strong. The rapid expansion of this company has held the shares at the present high level.

FINANCE	Price Nov. 17	+ or - on week	O.F.S.	Price Nov. 17	+ or - on week	DIAMONDS & PLATINUM	Price Nov. 17	+ or - on week	TIN (Nigerian and Miscellaneous) contd.	Price Nov. 17	+ or - on week
African & European...	3½		Freddies...	7/3	+7½	Anglo American Inv...	7½		— Kaduna Prospectors...	2/9	
Anglo American Corp.	8½		Freddies Consolidated...	19/-	+4½	Castis...	29/3		— Kaduna Syndicate...	2/9	
Anglo-French...	26/3	-7½	F. S. Geduld...	5½	+½	Cons. Diam. of S.W.A.	6½		— London Tin...	6/6	-3d
Anglo Transvaal Consol.	23/9		Geoffries...	17/6	+6d	De Beers Defd. Bearer...	5½		— United Tin...	3/1½	
Central Mining (El shrs.)	45/3	-9d	Harmony...	40/-	+1/9	De Beers Pfd. Bearer...	17				
Consolidated Goldfields	57/-	+3d	Lorraine...	15/1½	+4½	Pots Platinum...	9/10½	+4½			
Consol. Mines Selection	48/9	+1/3	Lydenburg Estates...	13/4½	+2/1½	Wateraaf...	15/7½				
East Rand Consols...	3/3		Merriespruit...	18/6	+1/3				SILVER, LEAD, ZINC		
General Mining...	5½		Middle Wits...	78/9	+1/3				Broken Hill South...	52/9	-4½d
H.E. Prop. 5/- Shares...	10/4½	-4½d	Ofais...	75/3	+1/3	Chartered...	89/-		+6d Burma Mines...	2/6	
Henderson's Transvaal...	8/6		President Brand...	43/9	+10½	Esperanza...	5/6		-1½d Consol. Zinc...	44/6½	+5/3
Johnnies...	47/9		President Steyn...	28/7½	+1/1	Indian Copper...	5/6		+9d Lake George...	7/-	-3d
Rand Mines...	3½		St. Helena...	14/9½	+10½	Messina...	5½		-½ Mount Isa...	45/3½	-1/9
Rand Selection...	42/6		Virginia Ord...	28/7½	+1/1	Nchanga...	11½		+½ New Broken Hill...	34/9½	+9d
Union Corp. (2½ units)	34/3½	+3d	Welkom...	28/7½	+7½	Rhod. Anglo-American...	78/3		+1/3 North Broken Hill...	66/3	+1/3
Vereeniging Estates...	38/1½		Western Holdings...	5½	+½	Rhod. Katanga...	12/-		+2/6 Rhodesian Broken Hill...	11/10½	-1½d
Wits...	43/9					Rhodesian Selection...	22/7½		-4½ San Francisco Mines...	22/3	
West Wits...						Rhokana...	28½		— Uruwira...	4/3	
						Rio Tinto...	39½	-2½			
						Roan Antelope...	20/3	-4½d			
						Selection Trust...	61/6	-2/6	MISCELLANEOUS		
						Tanks...	5½		BASE METALS & COAL		
						Tharsis Sulphur Br...	8		Amal. Collieries of S.A.	48/9	-9d
									Associated Manganese...	42/9	+3d
									Cape Asbestos...	12/3	
									+3d C.P. Manganese...	42/6	
									-1½d Consol. Murchison...	56/3	+2/6
									Mashaba...	2d	
									-1/1 Natal Navigation...	2½	-½
									-3d Rhod. Monteelo...	1/3	
									-1½d Turner & Newall...	92/-	-2/3
									Wankie...	17/-	
									Witbank Colliery...	90/-	+1/3
									CANADIAN MINES		
									Dome...	\$31	+½
									+3d Hollinger...	\$30½	
									-3d Hudson Bay Mining...	\$97	-4
									-9d International Nickel...	\$101	+½
									-3d Mining Corp. of Canada...	\$150	+½
									+9d Noranda...	\$150	+7
									— Quomont...	\$84	+½
									-3d Yukon...	3/9½	+1½d
									OIL		
									Anglo-Iranian...	18½d	-7
									Apex...	30/3	-1/9
									+1½d Attock...	47/6	-1/10½
									— Burmah...	5½	-½
									-1½d Canadian Eagle...	42/6	+½
									— Mexican Eagle...	22/10½	+4½d
									Shell (bearer)...	5½	-½
									Trinidad Leasehold...	31/3	
									+1½d T.P.D.	27/9	-2/9
									— Ultramar...	28/3	-1/3

COMPANY NEWS AND VIEWS

Drop in Value of West Wits Portfolio

Net profits earned by West Witwatersrand Areas during the year ended June 30, 1954, were slightly down from those of the preceding year. This was mainly due to a drop in profit from sales of property to £13,999 from £86,073. On the other hand, dividends received rose to £632,806 from £574,534 previously.

Year to June 30	Total Revenue	Expenses £	Tax- ation £	Net Profit £	Divi- dends £	Carry Forward £
1954	669,590	78,410	29,530	561,650	588,588	120,546
1953	688,134	62,883	43,883†	581,368	546,546	147,484

* Including £47,605 drilling expenses (1953 — £31,325)

† Including Dr.£16,094 in respect of past years' adjustments

Dividends paid on the £840,840 issued ordinary capital in shares of 2s. 6d. were increased to 70 per cent as compared with 65 per cent for the year ended June 30, 1953.

Apart from the company's holding of 28,125 Witwatersrand Deep options which were allowed to lapse on March 31, 1954, there was no change in the investment portfolio. Since June 30, 1953, however, values have fallen considerably. As at June 30, 1954, investments appeared on the balance sheet at the unchanged book value of £6,643,541 while market valuation at that date showed a drop to £16,939,771 as compared with the previous figure of £20,049,650. The main contributors towards this decline were Blyvooruitzicht with a fall to £4,915,251 from £6,190,965 and West Driefontein whose valuation fell to £8,158,634 as against £9,837,291.

During the year drilling was carried out in five boreholes. These operations, although providing useful geological information, revealed no exceptional values.

West Wits 2s. 6d. shares at their present price of about 43s. 6d. give the low return of about 4 per cent. This present high level of the shares, of course, reflects the expectation of future higher dividends as the West Wits mines get fully into their stride. In addition Doornfontein, which has only just reached production, has yet to pay a maiden dividend. Mr. P. S. Hammond is chairman. Meeting, Johannesburg, December 2.

Gold Fields Rhodesian Doubles Share Dealing Profits

Profits from share dealing of Gold Fields Rhodesian Development Company during the year ended May 31, 1954, rose to a level which was more than double that of the preceding period due to much improved market opportunities for this activity as compared with those of the previous year. On the other hand, income from investments fell to £40,572 as against £48,740 mainly due to lower dividends received from Ashanti Goldfields, Lake View and Star and Yukon Consolidated Gold. Interest received, however, rose to £10,304 from £4,504, but no profit accrued from the sale of fixed assets as against £28,711 previously.

Year to May 31	Total Revenue*	Tax- ation £	Net Profit £	Divi- dend £	To Reserve £	Carry Forward £
1954	99,380	18,260	45,117	34,570	20,000	88,835
1953	106,962	23,068	42,400	NIL	50,000	78,582

* Including profit from sales of investments £44,330 (1953 — £18,567)

The company returned to the dividend list—the first time since 1951—with a payment of 5 per cent on the issued ordinary capital of £1,257,110 in shares of 10s. each.

Apart from the Sebakwe Group of gold-antimony mines in Southern Rhodesia which it owns and operates, Gold Fields Rhodesian has an interesting spread of mining investments. These include shareholdings in a number of South African gold properties amongst which mines on the West Wits Line and the O.F.S. figure prominently. The portfolio also includes holdings in West African gold mining companies, an interest in Lake View and Star, the large Australian Golden Mile property, and in Yukon Consolidated Gold Corporation situated in Canada. Moreover, during the year an arrangement was made between the company and the Consolidated Zinc Corporation of Canada for an association in the field of base metal exploration in that country. The Company's quoted investments which stood on the balance sheet at book cost of £511,641 had a market valuation as at May 31 of £770,091.

Reflecting the expectation that increased dividends should be received when the company's large proportion of new mining investments reached full maturity, Gold Fields Rhodesian

10s. ordinary shares stand at around 7s. 6d. x.d. at which price they yield just under 6.5 per cent. Mr. Robert Annan is chairman. Meeting, London, December 1.

Points From Some Speeches

At the meeting of Luipaards Vlei, which took place earlier this week, the chairman, Mr. P. S. Hammond, disclosed that metallurgical tests and trial runs in the uranium plant have begun and it is hoped to reach a production basis early next year. In preparation for this, as from November, monthly results will refer to gold operations only in respect of which the milling rate will be reduced to about 90,000 tons per month. Results from uranium activities on the Bird Reef Series will in due course be published separately. Owing to the fact that severe faulting has been encountered it has not yet been possible to build up sufficient reserves for full operation of the uranium plant. As a result of this, after deduction of uranium loan repayment instalments, working profits from uranium may not initially compensate for the loss of those derived from gold. But although there will be some delay before the uranium plant is working to full capacity, this activity will, in time, provide a very profitable additional source of revenue. Meanwhile a short-term loan will be necessary until uranium profits are being made and New Consolidated Goldfields have accordingly agreed to lend £400,000.

Mr. E. S. Hailett, the chairman of Sub Nigel declared that the profitable continuation of the mine may be expected to extend for many more years. Exploratory stoping in areas outside the major pay shoots continues, and it will be the success of this work which will largely determine whether future operations can continue at their present level or not.

The meeting of Harmony Gold Mining Company also took place last week and one of the most interesting points that the chairman had to make was that much of this mine's lease area seems likely to be free of disturbance by any large fault. The reef is robust and has a good width over which gold is fully distributed. Sampling so far has indicated consistent, rather than erratic values.

He referred also to the existence of khaki shale which is present in the north western part of the property. Mining operations, however, are not likely to enter this area for some years.

Merriespruit to Produce Uranium

It has been announced that Merriespruit gold mine in the O.F.S. is to become a uranium producer. But as rumours have for some time suggested that this mine was to become a scheduled producer the announcement has been received as being more in the nature of a confirmation.

A plant will be erected for production of uranium and pyrite-bearing concentrates from the residual slimes of the gold production plant. These concentrates will then be piped to Virginia for treatment. Pumping of concentrates is expected to start at about the end of next year. In order to make provision for the extra quantity of slimes which have now to be treated at the Virginia plant, this mine has received approval from the A.E.C. to increase the capacity of its present uranium and pyrite plant. Uranium production at Virginia is expected to start in the first half of next year.

R.S.T. Offer 3 for 44 at 17s. 6d.

Details of proposals under which capital will be raised by Mufulira Copper Mines and its controlling company Rhodesia Selection Trust have been announced.

In the case of R.S.T. the offer takes the form of 1,443,776 ordinary 5s. shares at 17s. 6d. in the proportion of 3 for 44 held. Mufulira proposes to issue 666,667 £1 ordinary shares at £3 in proportion to shareholders existing holdings.

As stated in the *Mining Journal* of October 29, page 497, the new money is required for further development of the Mufulira mine and for the completion of the electrolytic refiners extension.

Mount Isa's Increased Profits and Dividend

Profits earned by Mount Isa the lead-zinc-silver mining property in the Cloncurry district of North Queensland, Australia during the year ended June 30, 1954, rose sharply to £A2,096,274 from £A1,668,663. This figure was struck after providing £A520,000 for taxation (£A300,000) together with

£A800,000 for depreciation (£A800,000). Appropriation from profits of £A600,000, the same as last year, was made for capital expenditure and mining development.

With the recommendation of a final dividend of 10 per cent the total dividends in respect of the past financial year amounted to 20 per cent on the issued ordinary capital of £A5,757,312 in stock units of £A1. This compares with 15 per cent in respect of the previous year. Mr. G. R. Fisher is chairman. Meeting, Australia, December 6.

Inco's Increased Dividend and Sales

The recently announced increased distribution by International Nickel to \$2.90 per share as against \$2.35 in the corresponding period has since been followed by the company's interim report for the first three quarters of the current year ending December 31.

Consolidated net sales to September rose to \$262,700,000 as against \$255,000,000 in the corresponding preceding period. Net earnings rose to \$47,400,000 from \$41,300,000 after all charges, depreciation, depletion, taxes, etc. After preferred dividends this was equivalent to \$3.15 for the nine months as against \$2.72 per share previously.

Expressing his confidence in the future of nickel, Dr. J. F. Thompson, the chairman of the company, refers to the many uses of nickel which is so essential to the modern age. Apart from its use in the manufacture of jet engines, he sees an expanding market for nickel not only in this section of industry but in the wider industrial uses arising from the general adoption of gas turbine engines for many purposes.

Coronation Syndicate Maintains Dividend

A dividend of 15 per cent has been recommended on the issued ordinary capital of £402,500 in shares of 2s. 6d. of the Coronation Syndicate in respect of the year ended June 30, 1954. This company owns the Muriel, Tebekwe, and Arcturus gold mines in Southern Rhodesia.

Year to June 30	Working Profit £	Tax- ation £	Net Profit £	Dividend Distribution £	To Reserve £
1954	95,176	31,964	63,212	60,375	15
1953	115,165	26,737	88,428	60,375	15

Meeting, December 29, Mr. J. H. Mitchell is chairman.

Lake View and Star's Record Production

During the year ended June 30, 1954, the previous year's record tonnage treated was again exceeded at Lake View and Star, the largest gold mine on Western Australia's Golden Mile. Thus the revenue earned from sales of bullion showed an increase, but the extra expense of milling the increased tonnage could not be offset due to a slight fall in the milling grade. Profits, therefore, remained at virtually the same level as for the preceding year.

Year to June 30	Ore Treated Tons	Gold Recovered oz.	Per ton treated Costs (s. d.)	Grade (dwt.)	Development footage payable (ft.)	(in. dwt.)
1954	743,047	160,182	52 4	4.71	9,380	342
1953	721,845	151,400	52 11	4.90	12,698	348

Note—Tailings amounting to 643,343 tons (1953 — 522,877) were retreated for a profit of £33,407 (1953 — £25,308)

Dividends paid on the company's issued ordinary capital of £560,000 in 4s. shares were maintained at 56½ per cent or 2s. 3d. a share.

Year to June 30	Total Revenue £	Mine Expenses £	Tax- ation £	Net Profit £	Divi- dend £	Carry Forward £
1954	2,143,211	1,650,094	272,500	444,370	173,250	79,100
1953	2,113,563	1,615,115	278,000	447,409	173,250	68,480

Ore reserves estimated as at July 1, 1954, were increased by 21,000 tons to 3,756,300 tons at a value of 4.8 dwt. per ton.

Figures in respect of operations for the first nine months of the current financial year show that tonnage milled rose to 490.3 tons as against 473.0 tons yielding 111,670 oz. of gold as compared with the previous figure of 104,716 oz. Tailings treated amounted to 344.5 tons as against 366.9 tons in the corresponding preceding period. Lake View and Star ordinary 5s. shares now stand at around 16s. 6d. to yield nearly 13½ per cent.

Sir Joseph Ball is chairman. Meeting, London, December 14.

Cast's Again Pays 75 Per Cent

With the recommendation of a final dividend of 3s. per 5s. unit on the issued capital of £1,516,555 in respect of the year ended June 30, 1954, the total distribution by Consolidated African Selection Trust has been maintained at last year's level of 3s. 9d. or 75 per cent.



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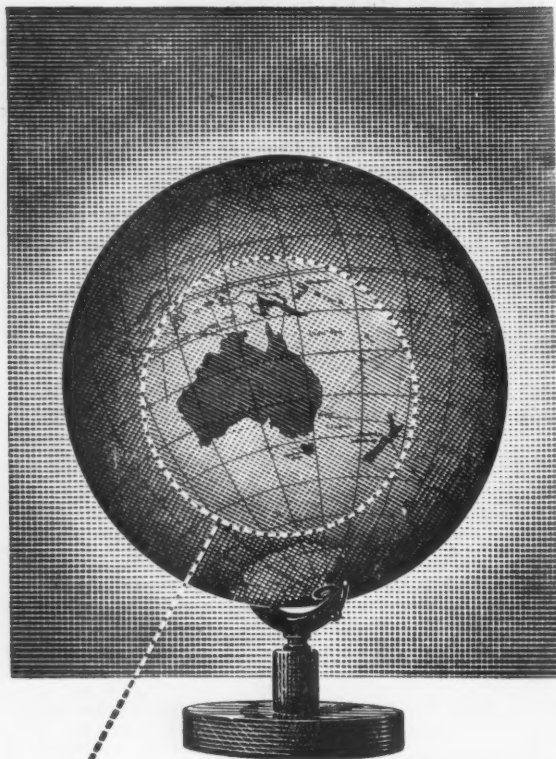
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Year to June 30	Total Profit £	Tax- ation £	Net Profit* £	Divi- dend £	To Reserve £	Carry Forward £
1954	2,227,957	1,412,000	815,957	625,579	380,546	323,067
1953	2,463,872	1,412,000	1,051,872	625,579	550,542	303,235

* Before addition of taxation reserve no longer required and taxation credit totaling £210,000 (1953 — £269,000)

Mr. A. Chester Beatty, Jun. is chairman. Meeting, London, December 21.

Western Selection and Development Group September Quarterlies

The great improvement in earnings by all the mines of the Western Selection and Development Group during the September quarter suggests that the long and sustained efforts made in recent years towards countering increasing costs with rises in production and efficiency are at last yielding tangible results. Indeed, the West African market has received more attention during the last few weeks than for many years and it becomes increasingly more apparent that hopes of future prosperity in this section are soundly based.

Company	Dec. Qtr. 1953 £	Mar. Qtr. 1954 £	June Qtr. 1954 £	Sept. Qtr. 1954 £
Amalgamated Banket	72,027	51,294	79,954	102,980
Ariston Gold Mines..	122,744	149,954	165,418	178,471
Bremang Gold ..	21,227	18,181*	907	36,367
Gold Coast Main Reef	36,556	54,665	45,390	60,383
Marlu Gold ..	47,940	29,840	28,824	45,492

* Loss

Of particular interest amongst the latest returns is Amalgamated Banket's profit which is virtually double that of the March quarter. This, however, tells only part of the story for in October the monthly profit was £35,500 as against the previous average for the year of about £16,000. At Bremang much headway has been made since losses incurred in the earlier months of the year and the present most satisfactory profit has been achieved despite the fact that the re-assembly of No. 1 dredge on the Offin river has been delayed. It is hoped that this dredge will be working early in the new year.

Amongst good development results announced by the group is that from Gold Coast Main Reef in whose Tuappim section 270 ft. were sampled on the 14th level which proved to be 100 per cent payable having a value of 495 in. dwt. In the Bondaye Main Shaft section 210 payable ft. of ore were exposed on the 16th level which had a value of 310 in. dwt. Driving continued at Ariston north and south of crosscut 259 north on the 23rd level and has exposed to date 945 ft. of reef, 762 ft. of which have been sampled giving average values of 8 dwt. over 88 in. or 704 in. dwt.

It is disclosed by Marlu that the operating profit for the financial year ended September 30, 1954, subject to London Office charges, depreciation, etc., was approximately £150,000.

London and African Doubles Dividend

A dividend of 12½ per cent (6½ per cent) is recommended on the issued ordinary capital of £187,506 in 2s. shares of London and African Mining Trust in respect of the year ended September 30, 1954. This is the third dividend to be paid since the company's capital reconstruction in 1952 and compares with the two preceding dividends which were 5 per cent and 6½ per cent respectively.

Year to Sept. 30	Total Profit £	Dividend Distribution £	%	To Reserve £	Carry Forward £
1954	42,254	12,891	12½	15,565	15,285
1953	15,658	6,446	6½	10,000	1,487

At the time of the publication of this company's last report and accounts its largest shareholding was in Gold Coast Selection Trust—which has since changed its name to Western Selection and Development Company—whose holdings consist primarily of West African mining shares. Other holdings included gold and oil producing companies together with interests in Nigerian tin and columbite properties. The sharp increase in profits earned are, no doubt, to no mean extent the outcome of sharedealing activities in the West African market which has recently shown substantial gains. Mr. W. J. C. Richards is chairman. Meeting, London, December 14.

Ashanti-Obuasi Needs £25,000

Details have been received of a proposal by Ashanti-Obuasi Reefs to raise £25,000 by way of unsecured short term loans carrying interest at the rate of 5 per cent from March 31, 1955. It is proposed that these loans should have the right of con-

version into shares of the company at 1s. 3d. a share during the period March 1 to March 31, 1957.

The money is required to enable the company to undertake a diamond drilling and development programme which it is hoped, will prove or disprove the present indicated promising possibilities of the Kayainkor Mine. It is pointed out that although 1,000,000 options in the company are exercisable between February 1, 1955 and January 31, 1956, no new money will necessarily be forthcoming until the latter date.

Although at the present time the West African go'd market is receiving more attention than for some time past it is perhaps permissible to wonder what amount of interest this proposal will generate. The more important points which come to mind from a perusal of the circular is firstly, whether in the event of the venture proving unsuccessful, sufficient funds could be available to pay off the unsecured loan. And secondly, the absence of information regarding the property other than the belief that it has promising possibilities.

Copper Pass to Make One for Two Scrip Issue

A one for two scrip issue is to be made by Copper Pass by capitalization of reserves. The object of this is to bring the issued capital more into line with that employed in the business and will involve increasing the authorized capital of the company to £2,000,000 by the creation of 250,000 £1 shares.

Year to Mar. 31	Total Profit £	Tax- ation £	Net Profit* £	Divi- dends £	To Reserve £	Carry Forward £
1954	670,844	300,295	274,244	61,751	200,000	281,411
1953	251,170	140,793	54,088	60,470	150,000	218,918

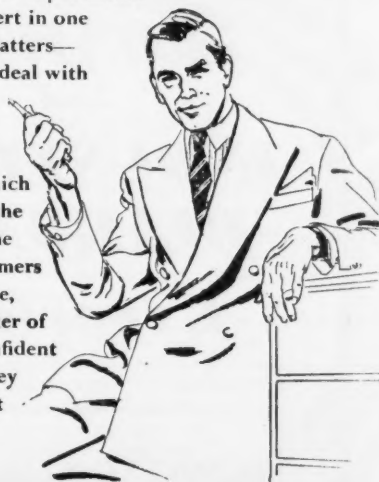
* Before transfer from market reserve of £50,000 (1953 — £200,000)

The year to March 31, 1954, marked another successful period of trading by the company. But as pointed out by Mr. A. G. Pass, the chairman, the substantial difference in profit and loss figures between the two years was due entirely to fluctuations in metal prices with their consequent effect on stock values. Both years, in fact, were consistently successful. A full account of Mr. Pass's statement to shareholders will be found on page 590.

Meeting, Bristol, November 18.

OUT OF YOUR GROUND

There are so many occasions when one realises how difficult it is to be well-informed on all the financial problems which arise in these complicated days. That is why our organisation includes a number of departments which are each expert in one or other of these matters—departments which deal with Foreign Exchange, which understand the complexities of Wills and Trusts, which will not get lost in the labyrinths of Income Tax and so on. Customers may, in consequence, bring to us any matter of this kind, in the confident expectation that they will receive efficient attention and sound advice.



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DIVIDEND 30 PER CENT

The Annual General Meeting of the Kwahu Mining Company (1925), Ltd., was held on November 18 in London.

The following is an extract of the Review of Mr. O. V. G. Hoare, the Chairman, as circulated to Members:—

The Accounts for the year to June 30, 1954, show a net profit of £27,159, which is almost identical to the profit for the previous year of £27,195. Income from dividends and interest, however, declined by just over £7,000 as dividends totalling only 5% were received during our financial year in respect of our shareholding in Gold Coast Main Reef Ltd., although that Company again paid dividends totalling 7½% in its own financial year. The proportion of our dividend income from other sources in relation to our income from Gold Coast Main Reef continues to increase.

An Interim Dividend of 15% for the year has already been paid, and the Directors now recommend payment of a Final Dividend of 15%, making a total distribution of 30% as in the previous year, but now on the increased capital of £110,906.

Since the close of the year, we have applied for and have been allotted 215,940 shares of 2s. each at par in Mines Development Syndicate (West Africa) Ltd.

As regards the Esperanza Copper and Sulphur Co. Ltd., our shareholding in this Company has been maintained.

Gold Coast Main Reef Ltd. has maintained its annual dividend at the rate of 7½% per annum. For the year ended June 30, 1954, the tonnage milled increased to 112,381 compared with 103,633 tons for the previous year and working costs fell by 3s. 8d. per ton to 70s. per ton. These better results have been due to the increased efficiency in all departments of the Mine, and, as a result, working profits, as indicated by the Quarterly Reports, have risen from £155,336 to £181,858.

The Report and Accounts were adopted and the Special Resolutions regarding Directors' remuneration was passed.

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CAPPER PASS & SON LIMITED

SUCCESS OF MODERNIZATION POLICY

MR. A. D. PASS ON THE COST FACTOR

The annual general meeting of Capper Pass and Son Ltd., was held on November 18 in Bristol, Mr. A. D. Pass (the Chairman) presiding.

The following is the Chairman's circulated statement:—

As is known to all of you present to-day Sir Paul Gueterbock, our Managing Director, died last March, within three weeks of the time he was to relinquish that office. I can only say, as I said last year that, coming in at a time when the business was rather stagnating, he completely revived the firm and was largely responsible for building up the very successful business which it is to-day. We mourn his loss.

You have before you the Directors' Report and I think it sets out the position very clearly, and only needs some amplification from me.

If we consider the Balance on Trade account as shown in the Consolidated Profit and Loss Account for the last two years, there is a marked difference between them, whereas in fact the two years have been consistently successful, if we eliminate the losses due to fall in metal prices in the respective years.

You will appreciate that these losses are dealt with by drawing on the Market Reserve put aside from taxed profits for this purpose.

INCREASED DEPRECIATION CHARGE

One of the chief differences in this year's accounts is the increased depreciation charge. This is explained in the Report, but I should like to amplify the explanation.

The Company buys the ores and residues which are its raw materials from many countries. The main sources are in North and South America, the United Kingdom and Western Europe, with smaller but significant quantities from Africa, Asia and Australasia. Our products also are exported to many countries. We are in fact doing an international trade, that earns for the country substantial amounts of foreign currencies.

But this naturally exposes us to competition from smelters and refiners all over the world. In addition to this direct competition, some of the ores and residues we treat are so low in metal content that unless they can be treated at a low cost they do not pay to mine or ship.

It is essential, therefore, that we should reduce our costs and increase our metal recoveries to the utmost in order to reduce our smelting charges to producers. There has been and still is considerable scope for this. For both new processes and improved plant for carrying out old processes are emerging up and down the world.

The recovery and refining of tin has remained the main activity of your Company. Over the years the raw materials we treat have become lower in grade and have increased in complexity. To recover tin economically from poorer materials and to separate and refine associated metals such as lead, copper, antimony, bismuth, silver and gold, experiments must continuously be made in laboratory and works.

CAPITAL EXPENDITURE

Working on these lines, we have spent some £650,000 on new plant and buildings from March 31, 1947, to March 31, 1954. That we have been able to maintain our profits while lowering smelting charges to our customers is, I think, evidence that this policy has been successful.

But it does mean that we shall have probably to spend some £90,000 to £100,000 a year, on the average, on capital account to maintain our profits. A depreciation charge of this order would, therefore, seem to be a necessary charge against profits.

As you will see from the Balance Sheet, our cash position was very good at the end of the year, and is very similar to-day. If, therefore, we should find that any of our lines of research should indicate the need for considerable plant extensions, we have the liquid resources for this purpose.

SCRIP ISSUE

As old plant is replaced by new one invariably finds that the new plant costs more to erect than the old one did. This is partly due to the inflationary rise of prices and partly to the fact that the new plant is far more elaborate in design and costly to build than the old one which it replaces.

This means that a policy of modernizing plant inevitably means a steady increase in the capital sunk in plant and buildings and the capital used in the business becomes more out of line with the issued capital. Hence the proposal for a further scrip issue which is the subject of the Resolutions before this meeting.

One further word about the Company's Ordinary shares. These, as you know, are not quoted on any Stock Exchange. More than that your Company still is very largely what is called a Family Company. Approximately 80 per cent of the Ordinary capital is held by the directors and employees of the Company and their relations, or by the relations of men who have been directors and employees in the past.

In the current year business continues satisfactory and supplies of raw materials are adequate. I should prefer not to commit myself to any forecast of the dividends we should consider it prudent to recommend for next year. On this point I would say that your Board believes in a policy of relatively stable dividends. We are in a trade where profits fluctuate widely from year to year by reason of the rise and fall in metal prices.

I wish to thank all employees of Capper Pass & Son Limited and Victor G. Stevens Limited on your behalf for the excellent results which continue to be achieved.

The report was adopted and the scrip issue approved.

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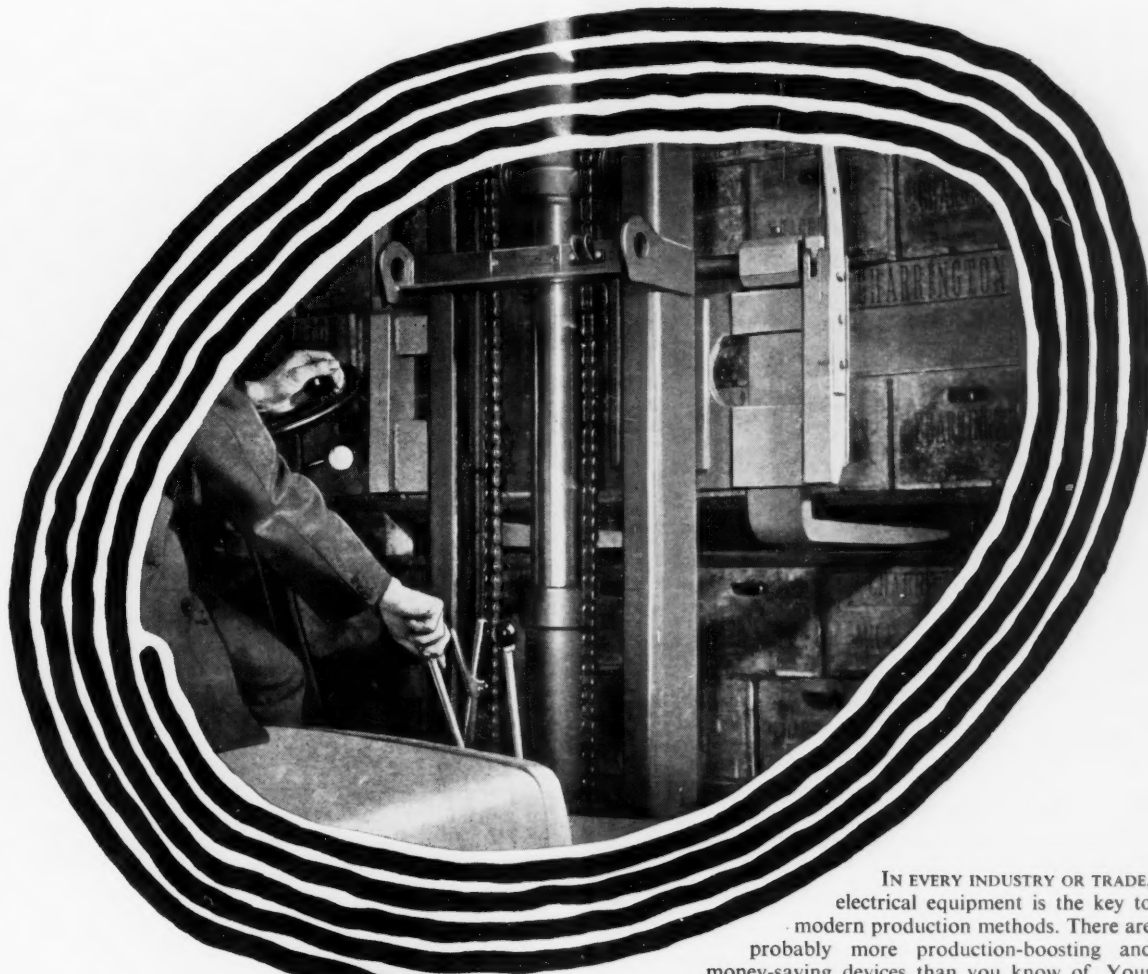
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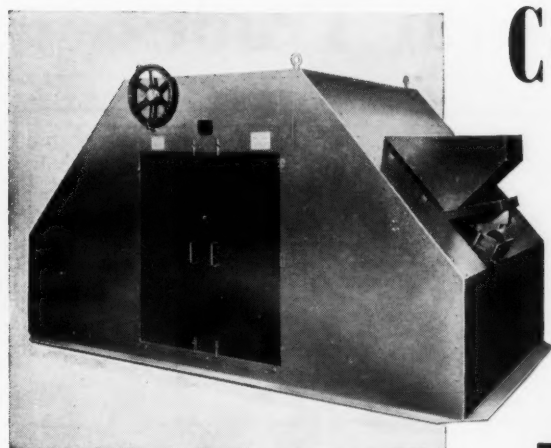


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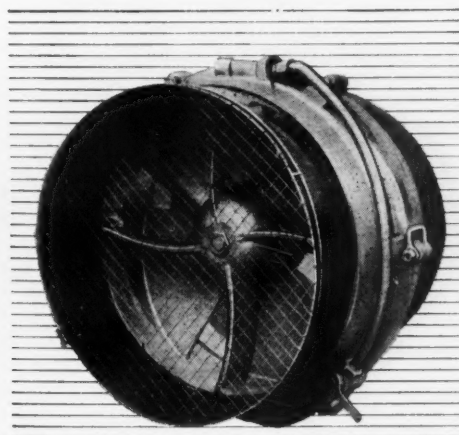
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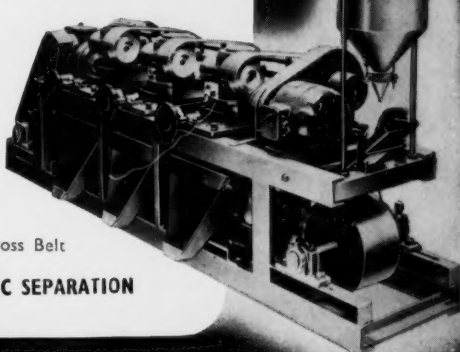
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High speed separation and extraction of one magnetic mineral



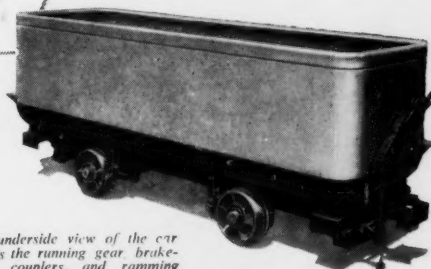
RAPID MAGNETIC MACHINES LIMITED
 LOMBARD STREET, BIRMINGHAM, 12 Tel: VIC. 1137. 'Grams: "Magnetism, B'ham."

BUTTERLEY

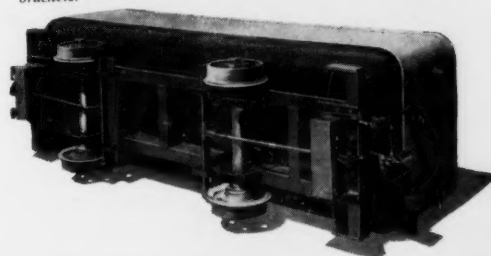
3 ton mine car

In this Butterley 129 cu. ft. all-welded mine car the body is 11 ft. 3 in. long x 3 ft. 9 in. wide x 3 ft. 2 in. deep. The mine car measures 12 ft. 4½ in. long over the couplers and stands 4 ft. 6 in. high from the rails.

It is fitted with automatic E.S.C. "Willison" couplers and is equipped with parking brakes. This is but one of the many varieties of mine cars and pit tubs produced by the Butterley Company in robust and enduring construction to a high standard of quality.



This underside view of the car reveals the running gear, brake-work, couplers, and ramming brackets.



The famous Butterley "Top Capping," which is pressed integrally with the body plates, forming an extremely stout stiffener.

PT.51a

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